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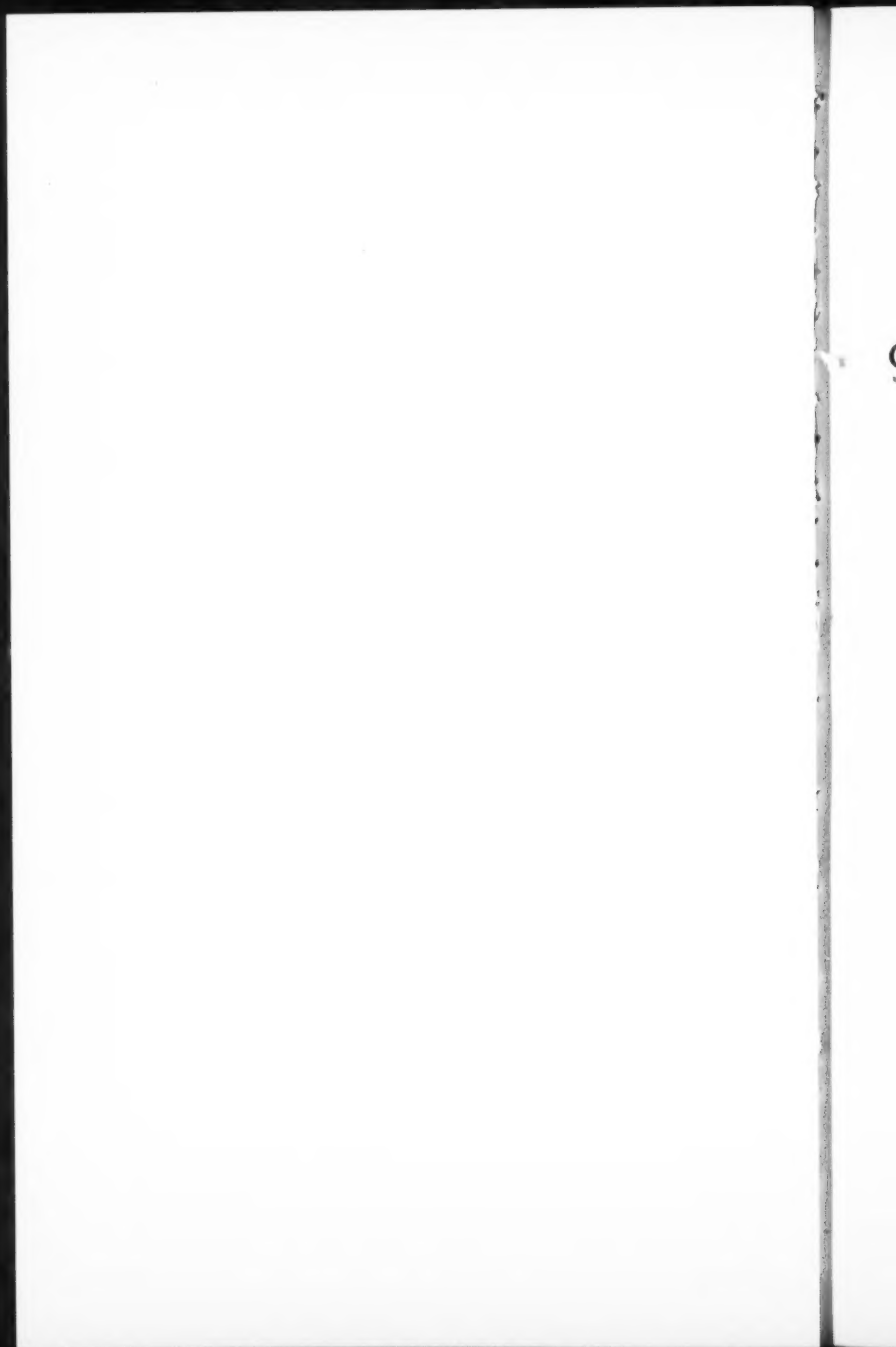
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CLAREMONT COLLEGE READING
CONFERENCE

Eleventh Yearbook 1946

CONFERENCE THEME

TYPES OF READING

IMPLIED BY A BROAD CONCEPT OF THE READING PROCESS

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PREFACE

William S. Gray, Ph.D.

Professor of Education, The University of Chicago

The Annual Reading Conference at Claremont Colleges is unique among the reading conferences in this country. It differs from most, if not all, of the others in the breadth of the conception of reading which it has consistently developed. One has only to read the successive volumes of its Proceedings to recognize clearly that it is a Conference with a message.

The conception of reading which the Claremont Conference promotes can be readily illustrated by comparison with other definitions. The usual dictionary definition of reading is that it consists of the interpretation of written or printed symbols. According to historians, this form of reading has been used widely for more than six thousand years. Because special techniques are essential in teaching boys and girls to recognize and interpret printed symbols, this form of reading has received large attention ever since schools were organized, even five hundred years or more before the beginning of the Christian era.

A somewhat broader conception of reading includes the interpretation of all kinds of symbols, seen or heard, that are used to communicate ideas to others. In addition to written or printed words, they include spoken words ("signs of ideas"), musical notes, the Morse code, and any other type of symbol that represents or stands for something else. In some instances, such as music, both children and adults commonly use the term "reading" in referring to the interpretation of the symbols used. In other cases, such as the interpretation of the Morse code as it comes over the wire, most people do not think of it as belonging to the same class of activity as the reading of print. The justification for the use of the term "reading" in both cases lies in the fact that the same basic processes are involved. The symbols, seen or heard, must be identified and their meanings apprehended and interpreted.

An even broader conception of reading is held by Dr. Spencer and others responsible for the Claremont Reading Conference. It includes intelligent response to any and every type of stimulus situation received through any sense organ. It is dramatically illustrated, on the one hand, by primitive man as he reads the signs, seen or heard, in his natural environment. It applies equally to the very complex process faced by the news commentator who "reads the signs of the times." As pointed out by Dr. Spencer, the process of reading is effected by the kind of stimulus received. Printed words, for example, may be sensed or interpreted either visually or tactually. Words spoken by another are usually sensed aurally. However, the deaf person must sense them visually, if he reads them at all, and the deaf and blind must sense them tactually.

The program of the Conference this year includes emphasis on many of the types of reading implied by the broad conception suggested above. There are sections on aural reading, which refer to the interpretation and

behavior responses to sound stimuli; there are similar sections on visual reading which refer to the interpretation and behavior responses to visual stimuli. Large emphasis is given also to "primary reading," including both the reading of things and the reading of people; to types of reading involving the audio-visual senses, to the reading of the physiological and psychological factors inherent in personalities, and to the reading of the various forms of printed material used in curricular activities. Dr. Spencer rightly insists that it is just as important to train pupils to respond intelligently to one type of stimulus situation as to another. Through the presentation of clear-cut examples of good teaching procedures, this Conference directs attention to a wide range of instructional problems of great importance.

The point of view which the Claremont Reading Conference promotes is not only comprehensive with respect to the variety of situations included in reading, but also with respect to the range of mental processes and reactions that accompany the reading act. Three or more decades ago the reading of printed symbols often was narrowly conceived as including merely the recognition of the symbols used. Those who favored this view maintained that the comprehension of meaning was not a part of the reading act, but involved supplementary thought processes. When applied to the broad range of situations included in reading as conceived at Claremont, this view of reading would include only the identification of stimuli and of the meanings attached to their various elements.

A much broader view of the reading act is that it involves not only the recognition of symbols, but also the important elements of meaning in their essential relations. To understand the meaning of what is read the reader must fuse the meanings of the separate words and phrases into a chain of related ideas. He must also grasp the meaning of the passage in the light of the broader context of total situation to which the passage refers. Dr. Spencer not only applies this conception of the reading act to printed symbols, but also to the hundreds of other situations embraced under his definition of reading.

A third conception of the reading act is that the reader not only recognizes the symbols and the essential ideas represented, but also reacts critically to the ideas apprehended. For example, he reflects on their significance, evaluates their worth, discovers relationships between them and in these and other ways clarifies his thinking concerning their value, validity and significance. It is only as reading in all its various forms rises to the level of critical interpretations that it may serve as a safe guide in promoting personal development or social progress.

A fourth conception of the reading act is that in addition to identification of symbols, grasp of meaning, and critical reaction to the ideas secured, the reader fuses the meanings thus derived with previous experience so that new insights, broader interests, rational attitudes, improved patterns of behavior, and richer and more stable personalities result. Unless the reading of printed symbols, or any other stimulus situation, provides for synthesis of what is read with what one previously knew, for appropriate reactions, and for new and better patterns of behavior, it has failed to achieve its basic purpose.

A praiseworthy feature of the Claremont Reading Conference is that it stimulates creative thinking among teachers concerning ways in which the different types of reading, and indeed, all learning, can be made most effective. It dramatizes by illustration after illustration the methods by which teachers can realize the most challenging purpose of public schools today. As defined by Mark May, of the Yale Institute of Human Relations, that purpose is to train boys and girls to react intelligently to all they see, to all they hear, and to all they read.

The Claremont Reading Conference has a unique message, and one of great significance in the education of boys and girls for effective living.

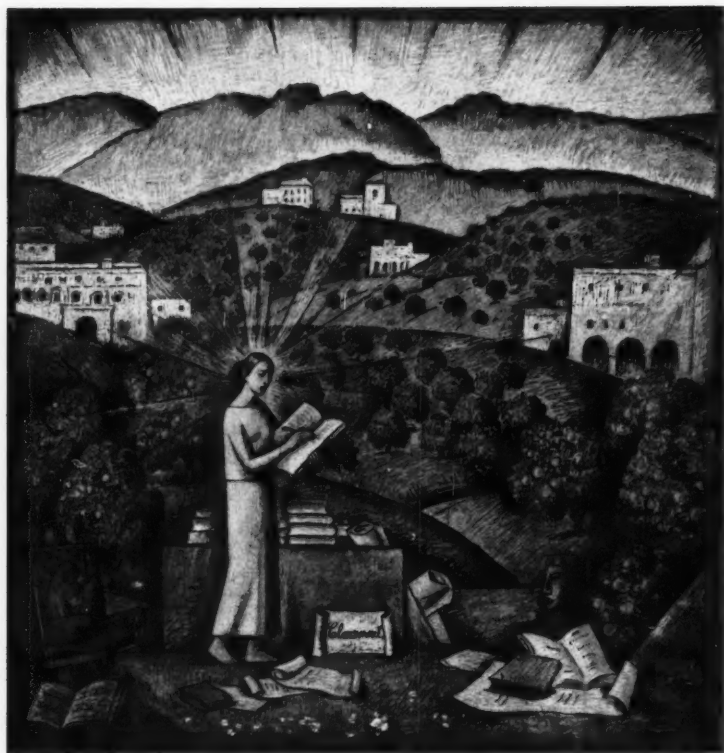
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Division I

Introductory

If parents could read their children's human behavior and tendencies; if older people could read youth, and young people were better readers of older people; if teachers and pupils, husbands and wives, brothers and sisters, friends and enemies, in short if all of us could read one another better! If we were better readers of ourselves, if we could read at a glance our own abilities, our rich human endowments well enough to mend our mistakes and correct our misunderstandings, how many would live richer, more efficient lives! How much less waste! What a lessening of follies and unhappiness!

Ann Bryan McCall



Alfredo Ramos Martínez is known as the "Father of Mexican Art," for it was he who first encouraged Mexican artists to paint their own people and things they knew rather than to follow the traditions of some foreign art. He founded, in Mexico, La Escuela de Aire Libre to which anyone interested in art might come, regardless of age, class, or former vocation. Señor Martínez often says that his first teacher was the orange tree, for while in its roots are the wisdom of age, new ideas are always coming forth with its leaves and blossoms.

During the summer of 1945 Señor Martínez was teaching at the Claremont Summer Session. It is a privilege to present the painting which he drew giving his impressions of Claremont, and to print his message to both teachers and students.

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AN ARTIST READS

Alfredo Ramos Martínez
Hollywood, California

I am going to talk to you about the two fundamental points for the teaching of art. (First) *For me the case of the children is sacred.*

All children who come to this world have talent. The talent that they have is their own vocation; and for this reason, it is necessary for the teacher to find out what their vocations are and in this way, to guide them.

The vocation is the strength that we all have. God has given it to us. It is a great privilege; if we use it right, it will take us to success.

I have the concept, that there is not one boy or girl in the world without talent. We all have a creative force. For this reason when somebody tells me of a doctor who is not good at all, who has no talent, I laugh at the one who says this. I think that this doctor without talent for medicine could be a wonderful architect, or a good farmer if his own parents or teachers had let him follow his vocation. It is logical that he be a poor doctor because he was obliged to study a profession that was not his vocation. He could have been great if he had been guided in the right way.

(Second) I am going to permit myself to tell you my personal idea of how true art is made. *The principal factors are the heart and the brain.* The heart is like the sun—all force and all light. It is like a stranger who will not admit any answer.

Meanwhile the brain is like a serious mathematician, rigid, who controls the crazy notions and great forces of the heart.

But, so that art can be expressive and have life it is necessary to put into it three-fourths of heart and one-fourth of brain. If you put one-half of each, the result is expressionless, rigid, and mathematical.

Art is love, sincerity and pureness, and for this reason to make art, we must surrender ourselves with all that love and all that sincerity. And on that road we must study, study, and all our energies should be in action; so that all we can learn each day will have the seal of sincerity and love which is just what will lead us to success.

Now I am going to tell you how I was a victim when I was studying in Europe. I remember when I was in Europe, the one thing that I had against me was that I loved to see all the beautiful works of art. And so, when I left the museums, I had inside of me all the works I like the most. When I started to paint that was the first to come out.

Naturally, I had to fight between what I painted and what I wanted to paint. I understood how important originality was, but in spite of it, all the time I was dominated by what I had seen.

After fourteen years of study in Europe, I returned to Mexico. It was there that I saw the reality when I saw one of the pictures I had painted years before. It was a large mountain. I liked it much more than all I had painted in Europe.

Naturally it was a great deception for one, for I saw I had lost fourteen years of my life! When I saw the picture made in front of the mountain, I clearly saw that what was in the picture, was, what I had wanted to do in Paris!

We Mexicans have two influences from the races, the Indian and the Spanish, as we are the result of them. And I immediately saw in my painting the influence of both. In the simplicity there was a likeness with Zurbaran, and the ample concept, was all Indian.

You can see that I had a good experience. For this reason when I talk to the young students, I am full of sincerity and love for them.

Now, as for me:—where there is a piece of sky, or a tree, there I find work for all my life!

Students: these words are for you. You should do all things with a strong will and continued study. You will be able, each one of you, to gain honors. Always have confidence in your efforts because they will lead you to triumph.

These ideas for the making of art, are also for any manifestation of your life. Develop, each one of you, that which is your vocation.

Study, learn, and you will all obtain the honor that I, with all my heart, desire for you!



HOW WELL CAN YOU READ?

*Ann Bryan McCall**

How well can you read?

Very well indeed. We are an extremely well-educated people here in America. We spent last year, as Anna Steese Richardson pointed out in a recent Companion article, five hundred millions more in free education than all the rest of the world put together. Yet if we ask, "How well educated are you?" the answer is not so ready. It depends on what is meant by education. Scott, writing to a young man who aspired to be a writer and who asked how to educate himself, says that all other education "is moonshine compared with the education of the heart." Another great man insists travel is the only sure means of becoming educated. Many agree that "experience is the best teacher." And Emerson flings out, "You send your boy to the school-master, but it is the school boys who educate him." Many years in school and college do not necessarily truly educate people; and there are

*Editorial: *Woman's Home Companion*, July 1936, Vol. 63, No. 7, Page 4. Reprinted by permission of the publishers.

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many great and efficient people who had scant schooling—Shakespeare, Washington, and Lincoln, for example.

What is it then, after all to be educated?

Suppose we consider the factors or parties most concerned or involved in the process of education. These are yourself, life, and other people. Whatever helps you really to understand these three might, I believe, fairly be said to be educative. The person who poorly understands these three is poorly educated, and the person who understands them well is well educated; with the result that his dealings with himself, life and others are more efficient, wiser, and happier than the dealings of those with less understanding. And since, his "dealings with" means in the last analysis, his behavior, physical, mental and spiritual, that brings us back to general psychology, because that is the science of understanding of human behavior.

In the light of modern general psychology, then, how well educated are you? How well do you understand yourself, life and others? But that too is rather a sweeping question. So suppose we limit ourselves only to the fundamentals, only, so to speak, to the three R's. Or, only one,—reading. From the standpoint of modern psychology, how well can you read? How well can you read yourself, and life, and others?

Human behaviors are of course not haphazard things. They are signs and symbols. They are definite meanings. How well do you read them, or know what this or that human behavior really means, indicates, reveals? Do you simply guess in such matters, do you read them with prejudice as a child with his book upside down reads not what is in the book, but only what is in his own mind?

These are matters of importance.

But how can you tell whether you read well or not?

By the soundness or unsoundness of your own life, your own affairs, your own relations to others. If your life and your relations to others are involved, unclear, unsound, muddled; if there are in them discomfort or bewilderment or bitterness; if there is misunderstanding, lack of accord in yourself, between you and life, you and others; if you are negative, resistant, antagonistic, bitter, it is certain you are a poor reader.

Here are some more signs of inability to read!

The tendency or habit of criticizing and blaming others; of overrating or underrating yourself and others; of self-consciousness, indecision, stubbornness, pessimism, moodiness, unreliability, over-sensitiveness, emotionalism; the tendency to irritate or nag or hurt people; envy, prejudice, intolerance.

People with these tendencies or habits are people to whom some of the richest experiences in life are closed books.

The truth is, and we may as well face it, there is among us a good deal of this kind of illiteracy, this inability to read, despite our enormous educational expenditures. Examples of it are on all sides of us. Thomas gets on poorly with his school reading. He mistakes "cart" for "cat" or "horse" for "house." His parents are quite shocked. They are likely to convey to Thomas that he is a very backward little boy. A consultation with his teacher is in order. Yet Thomas' parents may misread Thomas quite shockingly. They may even go on to the end of their days misreading, misinterpreting him, and little or nothing is done about it.

Or there is a woman, a leader in her community, better educated than the rest, who understands human nature so little that she hurts and misunderstands others, overrates herself, rouses bitterness and antagonism, and constantly misinterprets because she cannot read them—her husband—her son and daughter, and the cook. Here is a brilliant business man whose nod or scowl sends people scurrying anxiously, who can so little read even one-syllable words of human nature that he cannot understand why his wife is not happy—doesn't he give her ample income?—nor why his employees are not loyal or devoted. Here are two teachers, a man who is a genius in biology, a woman who is a scholar of the first order in literature, yet both are such poor readers of human nature and human reactions of young people that a young student goes to their classes unwillingly and comes away hating biology and literature. We all come in contact with instances like these, but not all of us are aware that these are people who cannot read.

If parents could read their children's human behavior and tendencies; if older people could read youth, and young people were better readers of older people; if teachers and pupils, husbands and wives, brothers and sisters, friends and enemies, in short if all of us could read one another better! If we were better readers of ourselves, if we could read at a glance our own abilities, our rich human endowments well enough to mend our mistakes and correct our misunderstandings, how many would live richer more efficient lives! How much less waste! What a lessening of follies and unhappiness!

And this, mind you, is to touch only on reading, with nothing said about what might be called the psychology of human writing—that is to say the psychology of expressing oneself; or the psychology of arithmetic—that is to say the human ability to reason clearly, to draw just and accurate conclusions, the adding and subtracting and multiplying and dividing of human instincts and behaviors and the accuracy of judgment and insight this would bring.

Worthwhile education is a long process which does and should stretch over a lifetime. It reminds me of a little girl, who, when she was asked after her first day of school what she had learned, said, "Oh, not much. I have to go again."

Again and many times again! But that of itself and patience and perseverance and continued effort at understanding ourselves and life and others—what worthwhile human values those are!

But when all is said and done I believe it may still be maintained that in this country we are spending far more in time and interest and effort than all the other countries put together on this higher form of education whose aim is the better understanding and reading of human beings and human values. Nowhere else are so many people interested in making a beginning of learning really to understand human nature.

General psychology is a limited term for such study, but it will do. How much understanding of general psychology have you at your command to help you as a parent, a teacher, a businessman or woman, as a human being who has all a human being's daily problems to meet?

How well can you read?

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THE READING PROCESS AND TYPES OF READING

Peter L. Spencer, Ph.D.

Professor of Education, Claremont Graduate School

We have been told of a hill-billy who felt affronted when he received a typewritten letter from a friend. "Why," he said, "did he send me *readin'* when I kin *read writin'?*" Apparently the ability to read writing ranked in his mind as an accomplishment well above the mere ability to read "*readin.*"

Such multiple meanings for the term, reading, are common. Printed words are "reading material," but we also *read* many other things. For example in *The Changeling* Beatrice observes "Alas, Sir! How do you? You look not well." To this, Alsemero replies, "You read me well enough, I am not well." Similarly, Irving Stone in his book *Immortal Wife* has Lieutenant Fremont say to his girl friend, "You have a way of reading my eyes." "I think you've read what I feel for you." And in *Mutiny on the Bounty* is found a somewhat different reference to reading: "They wore homemade goggles that gave them an oddly scholarly look, and scholars they were at that business: They could read a coral reef, and come away with their knowledge of it impaled on the point of a fishing spear. They were piscatorial Ph.D's and Lit.D's."

The New York Times Magazine Section for May 11, 1941 contained an article titled "Reading the Clouds." Much of the account consisted of pictures of different types of clouds which were to be *read*. The introductory statement included the following: "United States weather is, as a rule, orderly, and writes its intentions on the sky several hours, or even days, in advance. The clouds are its messengers, and their messages have long been interpreted (read) by farmers, airmen and others whose work is in the outdoors."

In the light of such awareness that reading is a process which is so widely applied and with such a variety of stimuli, it seems strange, indeed, that school programs for instruction in reading are so generally concentrated on only one type of application, viz.: reading printed words. For the average teacher, "*That is reading!*" He readily recognizes and admits that many other things must be read but learning how to read them is not a concern of the school's *Reading* program. They must be read, but "reading them is not reading." If such a statement makes sense, much of what follows in this discussion will be confusing. We propose to present a conception of the reading process and of programs of instruction in reading which is psychologically valid and broadens the educational applications to include all situations which involve the reading act. There are those who have come to believe that the narrowness of the current conceptions of the nature of the reading process is more than any other single factor responsible for the apparent impotence of the schools to serve the educational needs of many pupils. So much attention is centered upon "*readin' readin'*" that pupils are prevented from reading other things. And reading printed words is a very difficult process which not all people may be able to accomplish well.

Apropos of this point, Mr. George H. Henry, principal of a high school in Dover, Delaware, recently presented in *Harpers Magazine* a stimulating discussion of, "Why Our High Schools Are in Collapse." Mr. Henry stated that secondary school teachers and administrators commonly believe, "that at least a third of the entire secondary school population—grades nine to twelve—are incapable of mastering the stock tools of learning (reading and writing) well enough to profit from textbook instruction."

If such a statement is true, it seems patently unfair and pedagogically unsound to persist in centering instructional emphasis so heavily upon textbook procedures for instruction. For as Principal Henry pertinently points out, "The pupils who compose this lower one-third are not to be confused with the mentally backward (a far smaller group comprising only about five per cent of a school or less). The great majority of them are normal, wholesome, even talented responsible youth. They are, to put it simply, non-verbal."

By characterizing the students as "non-verbal," Mr. Henry apparently makes the common error of overlooking *spoken language* as a mode of verbal expression. Many of those who do not read printed words easily and effectively, experience little or no difficulty with reading spoken words. An expansion of the instruction procedure to include clear pertinent discussions in vocal language of the facts and ideas to be accomplished is helpful to such students. They read aurally more effectively than they read visually, even when the stimuli in both cases are verbal in nature.

Principal Henry suggests a possible solution to the problem of the secondary schools. He says, "One way out of the dilemma is to build high school education around a clear-cut fact: ninety-five percent of the entire school population, whether verbal or not, possess some gift or talent that is above average. It is just as important to uncover this gift for the non-verbal third (along with the others) as to teach reading and writing; maybe it is more important." "The search to 'know thyself' (one's talent)," he says, "should be the prime business of a school."

Those who have participated in the development of the broad conception of reading which has been the theme and purpose of these annual Claremont conferences will recognize that Mr. George, in the paragraph just quoted is "heading up our alley." Verbal reading is not all there is to the reading process nor are verbal expressions all there is to be read. Any educational program which treats of verbal reading predominately will neglect other reading activities which are of comparable or perhaps even of greater importance. The narrow basis of educational practices which are so largely confined to printed words and to textbook instruction inevitably leads to neglect and frustration for students who do not read such materials effectively. One may estimate the proportion of this group by various standards so that it may include the entire population or it may be confined to a relatively small percentage. Judging by the current customary educational offerings, there is an assumption that all, or at least, most people can be served most effectively thru an emphasis upon the reading of printed words. However, the observable products of such programs give ample grounds for questions.

The narrow conception of the reading process which associates it exclusively with printed words is a primary cause for much educational fail-

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ure and ineffectiveness. This does not imply that the reading of printed words is not important or that proficiency with such reading should not be sought. It is not a plea to "do away with books." It is much more fundamental than that. It is an attempt to point out and to emphasize the fact that we must *read* many kinds of *things* and that those who find the reading of some things difficult, may find other types of reading which can be just as educative in their function.

Reading is not a skill. However, many skills are often used in reading. In the broadest sense, reading is the process of interpreting sensed stimuli and of adapting one's behavior with regard for them. It is the process of making discriminative responses.

An important aspect of this definition is the fact that it designates no particular stimulus for the reading act. Any adaptive behavior implies discrimination and reading is the discriminative process. The customary definitions of reading have erred in their implication of a special stimulus. "Reading is what one does when one reads printed words." Such definitions are not helpful in designating the nature of the reading process. They merely associate it with particular stimuli. This often leads to over-emphasis upon the mere presentation of the stimulus rather than centering attention upon the refinement of procedures used in reading.

Reading is performed whenever one experiences sensory stimulation. Since there are many senses which effect perception in innumerable patterns or combinations, there are likewise many types of reading activities. We know things only as we have read them. If certain senses are deficient, our reading will manifest related deficiencies. The oft cited case of the blind man reading an elephant illustrates this point. Lacking a visual sense, the man read with their hands and arms, i.e. with tactile and kinesthetic senses largely. One man contacting only the elephant's leg likened the elephant to a tree. Another, contacting only the ear compared the elephant with a fan. The diversity of ideas concerning the elephant would have been much greater had the reading been based upon other types of sensory contact. The blind men read tactile-kinesthetic stimuli. The differences in their impressions were conditioned largely by the limited extent of their uses of those senses.

Suppose we add to the complexity of the study by including within the group a man who experiences the elephant only as an aural stimulus, and another whose only contact is olfactory. The one might say, "The elephant is like a trumpet." The other would liken it to an odor. At this point it seems pertinent to raise the question whether the ideas of these men concerning the elephant are any more or less distorted than are those of people who contact the elephant only by means of the printed word. For example a popular school dictionary describes an elephant as, "huge, heavy mammal that is the largest four-footed animal now living. Its long snout is called a trunk. Ivory comes from its tusks."

The reading process involves not only the present sensory experiences but also the recallable residues of previous experiencing and present goals and purposes. The process isn't mechanical, but it is highly creative and adaptive with moods, ideas, organic conditions, and the like. Meanings are created and are projected to stimulus situations even more than they are abstracted or extracted from such situations. We do not *get* meanings from

stimuli but we *make* meanings of them. That is why it may truthfully be said that we read with our prejudices as well as with our senses.

While it is probably true that no sensory process ever operates singly, still it is convenient to designate reading acts according to the dominant sense used therein. Consequently, we may treat of reading which is visual, or aural, or tactile, gustatory, olfactory, thermal, kinesthetic, etc. as regards the sensory basis. The intrinsic process will not differ substantially but different senses may occasion somewhat different procedures for reading responses.

Another way of classifying reading activities is to consider the stimuli or situations which are being read. Man is of necessity a social being. He is born weak and dependent upon others for his welfare and development. However, with proper care and direction this originally weak and dependent state may be changed to one of great strength and relative independence. This is accomplished much more thru the development of ideas than by physiological maturation. Consequently education is much concerned with conceiving and developing ideas. They are the products and in turn the implements of the reading process.

In the course of his development man must learn to read effectively himself, other people, and the things about him and them. It is important that we recognize this broad application of reading and that we utilize it in planning the programs for reading instruction. Current programs in that regard are far too narrow and too restrictive to accomplish what all too evidently is needed. In order to 'know oneself' one must read oneself with great skill and understanding. This hardest of all reading tasks can not safely be left to intuition or to chance development. It is the essence of personality and of personal and social stability. Certainly, the schools can find no other accomplishment which is of greater use and for which students need more assistance. There are no other types of reading for which illiteracy is more apparent or more disastrous. The individual stands alone in his knowledge of himself. As Edgar Guest has put it:

"I never can hide myself from me
I see what others may never see,
I know what others may never know,
I never can hide myself and so
Whatever happens, I want to be
Self-respecting and conscience free."

The process of reading other people is related to that of reading oneself but it is sufficiently different to require special consideration. The stability and satisfaction of social relations depend to a very considerable degree upon the efficiency of such reading. I believe it was William James who described the crowd of personalities that is created when two people meet. John meets James. John speaks to James. James speaks to John. John replies to the James that John thinks James is. James responds to the John that James thinks John is. Then John, the John that John thinks John is speaks to the James that John thinks James thinks James is. And James, the James that James thinks John thinks James is, answers John, the John that

James thinks John thinks John is, etc. Such a process of identification and consequent adaptation goes on so long as the persons are aware of each other. Truly our world is more crowded with personalities than with actual persons.

The cues for personal reading are many and varied. A popular song states:

"Every little movement has a meaning all its own.

Every thot and feeling by some movement it is shown."

Since this is the case, it is very important that we learn effectively to read such expressive movements. They may take the form of systematized language, such as the "sign language" currently used by trainmen on the railroads, or the artistic expressions used in interpretative dance. Who among us has not been intrigued by the language signs used by the conductor of a symphony orchestra? But by far the greater part of the expressions with posture and movement are less systematized and conventional. They are our everyday mannerisms that give the clues to our inner thots and personality which when effectively read "speak so loudly that frequently others cannot hear what we say."

Ann Bryan McCall has called our attention to the fact that human behavior is replete with signs and symbols which must be read. Sociometric studies of inter-person and inter-group relations serve to accentuate awareness of a need for the astute reading of people. The "isolate" who wants to be a member of a group and the "interloper" who insists on tagging along where he isn't wanted are too common to be overlooked. Much annoying behavior would doubtless be avoided if people were less illiterate with social reading. Wars and rumors of wars might be materially lessened by such reading.

Reading things is probably being better done than is the reading of ourselves or of other people. However, there is little question but that great improvement can be accomplished even with this part of the total reading program. The *thing* most considered in customary reading instruction is printed words. Just why spoken words are not considered to be within such programs has always been a puzzle. Likewise there are many other forms of word symbols which are more or less common and which, if treated within the special program for word reading, might give richness to the program. But we must read many things which are not words.

For example, Herbert Best in *Young'un* says, "Folks that choose food by eye not by taste and smell had ought to live on potato blossoms instead of their roots, and purty looking fur instead of the ugly meat that lay beneath." Reading one's food not only by the sense of sight but by gustatory and other senses as well is implied by this statement. As a matter of fact, it seems highly possible that food may be an effective medium for communication. It may be that more love letters are written with food than are produced with pen and ink. Illiteracy either in the writing or the reading of such messages leads to frustration and heartache.

The fields of physical and so-called "natural sciences" are best achieved by reading the things which make up their matters of regard. The geologist

reads the story of the Earth as told by its rocks. As someone has said:

"These rocks are older than Adam.
Stories they have to tell
Of ages of turmoil and struggle,
Could I but read them well."

Botanists read plants. Geographers read the "Earth's writings" to discover the proper relationships of man with his Earthly home. But in a basic sense we are all readers of nature. We read the weather signs, the sun's position. We read the soils, the plants, the animals, the streams, and bugs and insects, etc. We read machines, and the things that machines do. All about us are things to be read which when the reading is properly done make our lives richer and less full of hazards.

The reading of things is not a new idea which is being offered as an addition to an already overcrowded program in the schools. This is evidenced by the following quotation which is credited to Confucius: "The ancients who wished to illustrate illustrious virtue thruout the empire, first ordered well their own states. Wishing to order well their own states, they first regulated their families. Wishing to regulate their families, they first cultivated their persons. Wishing to cultivate their persons, they first rectified their hearts. Wishing to rectify their hearts, the first sought to be sincere in their thots. Wishing to be sincere in their thots, they first extended to the utmost their knowledge. *Such extension of knowledge lay in the investigation of things.*"

Surely, in our modern civilization, we have developed to a place where we should attempt seriously to secure and manifest, "illustrious virtue thruout the empire." Our programs for reading instruction should then be based upon the reading of things in such manner that the readers extend to the utmost their knowledge and thereby become sincere in their thots. We must have educational programs which produce cultivated persons who conduct regulated families and well ordered states. It is fair to state that most of such programs are well beyond the present narrow conception of the nature of the reading process and of the program of instruction of visual word reading which are based thereon. Broadening the conception of the reading process should be the "order of business" in every educational meeting in the future. There will be more sense in education when more senses are utilized in it.

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Division II

Aural Reading

During the past several years the writer has pointed out to students at Claremont College and to this Reading Conference that one of the major, if not THE major cause of reading retardation is in the auditory side of the mental process. That inasmuch as printed symbols are and are intended to be representative of the sounds we speak and hear, we need look no farther than audition for a tangible clue. Slowly but surely, as the logic of this point of view becomes apparent, and scientific investigation of aural malfunction commands greater attention, are we beginning to recognize that ANY mental function involving language is primarily auditory in principle.

Willard B. Hargrave

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Aural Reading

INTRODUCTION

The adage, "Don't believe anything you hear and not more than half of what you see," does not give aural reading a very favorable standing. However, like most proverbial statements, it should not be too literally interpreted. Sound stimuli are very important in our lives. Learning to read them effectively is a major problem in many situations. The yearbook committee is pleased to present six papers dealing with this problem from many points of view.

Dr. Kennedy pertinently points out that aural and visual reading are normally closely related. She suggests that considerable loss in educational procedure may result from the failure to give proper attention to "sound reading." Her analysis of the process of hearing is particularly timely since the measurement of hearing is far behind that of seeing.

Superintendent Wiley's discussion of "The Superintendent as an Expediter" of aural reading and of concern for hearing preservation has a message for everyone. He states that, "The facts are that few impairments scar the personality with greater unhappiness and cause more real tragedy than hearing impediments." His analysis of the superintendent's function as an *expediter* is pertinent and helpful. Acoustic controls are as important as are controls of light, odor, vibration, etc. The provisions for audiometric service and the coordination with speech reading instruction are *musts* which have too long been neglected.

The "School Physician's Approach to the Hearing Program" as presented by Dr. Kernkamp is a report of the development of her understanding of the hearing problems of children. Becoming aware of the inadequacy of the typical audiometric testing she describes the development of a program which is much more adequate to meet the needs of children with significant amounts of hearing loss. A mark of human intelligence is the ability to expedite learning thru profiting by the experiences of others.

The measurement, clinical analysis, public relations and remediation program outlines by Dr. Kernkamp offers much to schools not now engaged in similar work.

Dr. Hawk's report of case studies involving paired comparisons will prove suggestive to the readers of this yearbook. Her conclusion, "That superior children, presenting no marked deviation from normal in visual, auditory, or motor tests or performance rarely appear as remedial reading cases . . ." is not surprising but she gives evidence that deficiency in some phases of ability or in some social aspect frequently places even a superior intellect in need of remediation.

Mr. Hargrave points out that the school plant and the instructional program must be adapted better to serve the aural reading conditions and needs of pupils. He presents a challenging idea when he points out that children with so-called "conductive hearing loss" apparently have less trouble with printed word reading than do children who are classed as *normal* with

hearing but who have slight deficiencies in the higher ranges of speech sounds. He very pertinently cautions against mere "dial twisting" in audiometric testing and strongly condemns mass testing procedures.

Many readers may be surprised by Dr. Volf's ideas concerning the equilibrium sense and the amount of bone conduction normally used in our responses to sound. His likening a feather to the physiological mechanism of the cochlea suggests studies of other ways in which sound stimuli are trapped in the animal world. His discussion of *sound pressure tolerance* contributes much to the common conception concerning the remediation of hearing loss. One wonders what new procedures concerning aural problems will be developed thru the use of the Hydromedial Acoustic Recorder and Analyzer. Certainly it offers a combination of measurement services not now available in educational work.

Aural Reading

Helen Kennedy, Ph.D.

In the January 1946 issue of *Harper's* there appears an article, by a high school principal entitled, "Can Your Child Really Read?"^① In this article Mr. Henry states that "a third of the high school cannot read on a fifth-grade level or write a coherent paragraph reasonably free of errors." He goes on to state that these pupils are not dull or backward but that quite to the contrary many of them are talented. "They are," he says, "to put it simply, non-verbal." Unquestionably he did not mean to state that these students were unable to express themselves verbally but rather that they could not *read the printed word symbol efficiently*. Mr. Henry is one of many educators who conceive of "literacy" or "verbal" ability largely in terms of printed symbols.

At these Claremont Conferences the term reading, and hence the term literacy, has long been recognized in its broader aspects. Reading is conceived as the process of making discriminating reactions. Thru this definition forms of communication other than visual are recognized as involving forms of reading. An individual may read thru any or all of his senses—sight, sound, taste, smell, touch, etc. Thus reading may be predominantly visual, aural, gustatory, olfactory, tactual, or kinesthetic. Educators have long emphasized visual reading yet this is perhaps not the most widely used form. In the educational emphasis there has been a further limitation to a secondary form of reading—the reading of symbols—altho in recent years there has been an increasing emphasis on "primary reading" or the reading of things and relationships. What about these other forms of reading? And would a consideration of them help to solve the problem which Mr. Henry so ably points out?

In 1928 Dr. Rankin reported a survey of the relative amount of time spent in various forms of communication.^② He concluded, on the basis of the observations of twenty-one persons over a period of sixty days, that

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seventy per cent of the waking time is spent in communication. Of the total time spent in communicating forty-two per cent was spent in listening, thirty-two per cent in talking, fifteen per cent in reading (printed words) and eleven per cent in writing. At the same time he found that a survey of the school situation in Detroit revealed that only eight per cent of the school time was devoted to aural understanding, ten per cent to oral expression, and thirty per cent to the production of the written expression. Certainly any comparison of these data reveals some rather striking conditions. For purposes of illustration two of these processes may be termed basically aural—talking and listening, and two basically visual—"reading" (narrowly conceived) and writing. In the life situation Dr. Rankin found that seventy-four per cent of the time devoted to communication was spent in an aural situation while only twenty-six per cent was spent in situations involving predominantly visual activity. Yet the school program which he cited showed that less than one-fifth of the time was spent in training for the aural activities. This certainly indicates an inverse relationship between the opportunities which the school were presenting for certain types of learning and the actual practice of communication outside the school room. The schools were spending more than half of the time training the child in an activity which was used only fifteen per cent of the time by the people whom Dr. Rankin studied. And the life activity, which called for more than two-fifths of the time spent in communicating, received less than one-twelfth of the school's attention.

It must be granted that these data are old and that both the life and the school situations may have undergone changes in the past eighteen years. In 1928 neither the radio nor the sound motion picture had the wide use which they enjoy today. Certainly these two factors will have increased the relative amount of time spent in aural activity as compared with the visual. True these same two factors have entered the classroom. However, the use of the radio is limited and in many instances the audio-visual programs are still predominantly visual rather than audile. Many films do not have sound tracks and certainly the purely audio aids do not compare in number with the purely visual.

This contrast between the extra school and the school situations undoubtedly accounts at least in part for the condition which Mr. Henry indicated when he stated that such a large percentage of students are misfits in our educational institutions but that they are not misfits in life. These considerations substantiate the need which was pointed out in the 1945 Yearbook of the Claremont Reading Conference that "thot and consideration be given to its [sound-reading or aural reading] development comparable to that which is being given to reading printed word symbols."² It will be our purpose, then, to give "thot and consideration" to aural reading.

Since the Claremont Conference concept of reading unfortunately is not the one most familiar to educators it will not be amiss to pause to consider it. As has already been stated this broader concept includes as reading all forms of discriminative reaction. The type of reading depends upon the principal avenues thru which the stimulus reaches the brain, i.e., the eye, the ear, the nose, the mouth, the skin, or the muscles. Reading in this broader sense may be "primary" or "secondary." These terms do

not refer merely to the reading done in the primary grades or in the secondary schools. It is rather the distinction "between the reading of things, processes or relationship and the reading of symbols which represent but which actually are not such concrete materials. The reading of actual things, actual processes and relationships" is "designated as 'primary reading.' Whereas, the reading of symbols" is "called 'secondary reading.' The terms are designed to bring out an important relationship of which most people are aware but concerning which little seems to be done in the usual school program."^①

Further to clarify this concept the Yearbook continues: "Symbols are human inventions made for the purpose of facilitating expressions with a view to communication. Because the symbols represent things but are not actually equivalent to the real things they become hazardous as media for communication. In order that the use of symbols may be effective both the user and the reader must have roughly comparable ideas, feelings, attitudes, etc., which serve as their referents. Hence, 'secondary reading' really to be effective presupposes a considerable development of 'primary reading' which is related to it. In a very real sense one can do 'secondary reading' only in terms of the residue of ideas, attitudes, etc., which one has produced through related 'primary reading.'"

As has already been stated primary reading may take place with stimuli received thru any sense or any combination of the senses. Reading, then, is dependent upon stimuli and the individual's ability to perceive stimuli. In visual reading the stimulus is light, in olfactory reading it is odor, while in aural reading it is sound. Each of the forms of stimuli has certain quantitative and qualitative characteristics. In sound the qualitative factor is frequency and the quantitative factor is intensity. These characteristics are popularly known as tone and volume, terms which the modern radios have made very familiar. These terms should not be confused with pitch and loudness since these latter terms are used to express the sensation experienced by the individual irrespective of the actual characteristics of the sound.

Hearing is the ability to perceive sound. In determining one's auditory acuity both the intensity of the stimulus which will just elicit a response and the range of the frequencies over which a response may be elicited are important. A second level of hearing ability may be termed discrimination. This is the ability to distinguish between two tones or in other words between two sounds of different frequencies.

Another level of hearing is dependent upon the fusion of the sound stimuli received thru the two ears. The degree of stereophonic hearing which an individual has is dependent upon his ability to blend the stimuli and to interpret the result. It is thru stereophonic hearing that the direction or distance of a sound stimulus may be determined. Primary aural reading, then, takes place at any of these levels of reading.

Secondary reading is concerned with symbols which represent things but which are not equivalent to the things which they represent. Secondary aural reading, then, is concerned with sound symbols. Perhaps the most common forms of secondary aural reading is the reading of speech sound patterns. Since each of the speech sounds has a characteristic frequency and intensity it is obvious that the ability to understand speech is de-

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pendent, in part, upon one's auditory acuity and discriminative ability. However, the understanding of speech sounds is dependent upon more than the ability to hear sounds and to distinguish between them. The physicists have termed this more complex ability "intelligibility." Intelligibility has to do with the ability to distinguish between speech patterns. Those working with the problems of the adequate reception of speech patterns have found that the ability to perceive and distinguish between pure tones does not assure that one may adequately perceive and distinguish between speech patterns. Intelligibility tests, therefore, have been developed for use in the testing of acoustical properties of auditoriums, of telephone circuits, and of hearing aids. The fact that listeners are trained, frequently for as long as two years before they are considered qualified to distinguish between speech patterns, should give the educator a clue to the complexity of this ability. Where untrained listeners are to be considered the problem becomes even more complex because an untrained listener seems to hear that which he knows. In their book *The Handicaps of Deafness* the Ewings were "tempted to say that 'expectation is the mother of perception.'"³ Intelligibility in the normal listener, then, becomes something more complex than the correct perception of the speech pattern since perception is seemingly affected by expectation and/or familiarity. In other words the untrained listener is accustomed to dealing with sound patterns which usually are used to express meaning and he expects to find meaning in them. It then becomes obvious that meaning is the important element in aural reading.

Any attempt to discuss hearing and aural reading becomes a vicious circle or perhaps it would be better to call it a spiral since each process is subject to development. Before leaving the discussion of what we have termed hearing and proceeding to a discussion of aural reading per se the question of individual differences must be mentioned. Certainly there are great differences between individuals. There are individuals who cannot perceive sound. Such persons are known as deaf. Then there are individuals who can perceive sounds of only given frequencies and others who can perceive sounds of only great intensities. In other words some may have the auditory field limited horizontally and others vertically. There are all degrees and variations of these limitations. At the other end of the scale there are, of course, individuals whose hearing is very acute over a wide range of frequencies. Such variations may occur between individuals of any given age group but certain limitations characterize the older age groups. A factor which is important for the educator but which is very slow in gaining recognition is that there is growth or maturation in hearing so that certain variations also characterize the younger age groups. To what extent hearing is educable certainly is a question deserving of a great deal of attention.

As educators, our concern is with the child. It has been said that the school should "take the child where he is and treat him with respect for what he may become." When the child enters school he comes with certain sensory abilities and a "residue of ideas and attitudes." It is upon this foundation which the school helps to mold a structure. What, then, is the character of this foundation material?

Experiments have demonstrated that very soon after the birth of an

infant there is a response to sound stimuli. Not only is there a response to the stimuli but in an infant only a few days old it has been demonstrated that certain sound stimuli will elicit certain responses. Experiments have been conducted in which a bell was sounded just before a feeding. In very short order the sound of the bell would elicit certain suckling activities which demonstrates that the sound has been associated with a feeding situation. So in an infant there is evidence of not only primary aural reading, the discriminative reaction to sound, but also secondary aural reading, the discriminative reaction to a sound symbol, since it was evident that the sound of the bell symbolized something for the individual. In the life of most infants there is no bell rung just prior to each feeding nor is there any other consistent sound stimulus used to affect his behavior. Early in life, however, the infant learns that certain sound patterns represent certain things, processes and relationships. Thus it is probable that the first secondary reading experiences are aural. Pictorial representations are probably the first form of visual secondary reading which the child experiences. In both of these forms of reading there may be "color" to assist in the interpretation. Just as the representation of a horse or a dog which is made in color facilitates meaning so likewise does the tone of the voice give "color" to the meaning of the sound symbol. Many a child in response to the call of his parent interprets the color of the sound rather than the words in judging whether he must hasten or whether he may tarry. In interpreting the words the child is doing secondary aural reading but when he responds to the tone of the voice the reading is direct or primary.

As the child matures his physical development permits him to explore wider and wider areas. Sounds attract his attention and call for his investigation. In fact much of his visual and tactual-kinesthetic exploration may be prompted by a sound stimuli. The exploration is exciting so he wants to tell of his discoveries. His parents, older siblings, and playmates repeat sound patterns in connection with certain events or objects so he too repeats these patterns. Thus for several years prior to the child's entrance into the school situation he has not only been responding to oral symbols but he has been imitating these symbols and thus learning to communicate his desires and his understanding of the world about him. So it is that the child comes to school with both an aural and an oral vocabulary with which to communicate as well as with a "residue of ideas and attitudes."

It is obvious, then, that reading is not a process learned only in school. The individual gives evidences of reading shortly after birth and will continue to develop and refine the process until death. Mr. Kerfoot expressed it very aptly when he said that "Reading is a form of living."⁶ Certainly the schools may help the child to learn to develop and to refine the process. It is advisable then for the schools to identify the child's level of reading development. As educators we must know how far the child has progressed in his development with various forms of reading. This is necessary in order that his time in school will not be wasted by repeating types of experiences which he has already had nor by providing him with experiential opportunities which are too complex for his present level of maturity.

While the process of learning to read is continuous thruout life, the child does not develop uniformly in all forms of reading. As has already

been indicated the child reads aurally at a secondary level before he gives much evidence of secondary reading with visual symbols. Long before he enters school, however, he reads pictures which are a form of secondary visual reading and he learned that there are printed word symbols which are used to express meaning. The child has had some experience with this form of communication prior to school entrance but usually his ability to interpret printed word symbols is very limited. In fact one of his major expectations upon entering first grade is that he will learn to *read* (the printed word symbol) and he should be aided and encouraged in doing so. As compared with aural reading and the reading of pictures the reading of printed word symbols offers certain difficulties. One difficulty is that print lacks "color" or "tone." The reader must judge the meaning of the printed symbol and frequently the tone of it without such aid from the author as may be received from a speaker either thru inflection of voice or thru facial or postural expression. Usually, too, the printed symbol is related to the aural symbol with which the child presumably is already acquainted. This means that in many instances there is an intermediate step between the printed symbol and the concept making the process one of transliteration and then interpretation. The importance of this relationship between aural reading of the spoken word symbols and the visual reading of printed word symbols is perhaps most obvious when one considers the difficulties encountered in teaching a deaf child to read printed word symbols as compared with the teaching of braille to the blind child.

It is evident that there is an inter-relationship between the various types of secondary reading just as there is such relationship between the different forms of primary reading. As has already been stated the printed word symbol represents the aural-oral symbol. In one method of teaching visual reading with printed word symbols this relationship is emphasized, in another method it is recognized, and in a third procedure it is minimized. Those acquainted with what the school people have erroneously called "beginning reading" will recognize these methods of teaching respectively as "phonetic," "look-and-say," and "non-oral reading." The titles which have been applied to these methods of teaching are self explanatory.

Altho there is a definite temptation to elaborate on various points under consideration, such as methods of teaching, it is not the purpose of this paper to do so. There are two reports of a study which bear a definite relationship to our consideration since they indicate that the child's success with reading of printed symbols is related to the method of instruction. Two doctoral candidates at Teachers' College, Columbia University made an investigation of the visual and the auditory characteristics of poor readers (with printed word symbols).⁽⁶⁾ All of the subjects were from the lower grades. In half of the schools attended by these children the method of teaching "beginning reading" was phonetic and in the others the method was look-and-say. In general the findings of this investigation were that of the children who had hearing deficiencies there were more who had difficulty in learning to "read" with the phonetic method of instruction than with the look-and-say. Similarly of the children who had visual defects there were more who experienced difficulty in learning to "read" with the look-and-say method than with the phonetic.

Findings such as these certainly emphasize the necessity for as com-

plete an understanding of the child as is possible in order that the methods of instruction may be adapted to his needs and abilities. If the teacher is to "take him where he is" she must use every means to ascertain the extent of his growth prior to his assignment to her. Such an evaluation must necessarily include an understanding of his visual and auditory efficiency as well as his ability with the various forms and levels of reading. When the teacher understands the child she can decide more intelligently upon the methods of assistance which will be most effective in promoting his total growth.

Since the present educational program concerns itself largely with only the one form and level of reading—the visual reading of the printed word symbol—it seems inevitable that the discussion of methods leads us to that one phase. It is obvious, however, that this should not be the situation. It is evident that the child's pre-school and post-school life are relatively less concerned with the visual reading of word symbols than with the aural reading of such symbols. In 1936 Dr. Young reported an investigation which he made to determine the level at which a child's comprehension with silent reading of printed symbols equalled his ability to comprehend similar material thru hearing.^⑥ Dr. Young estimated that comprehension of visually read symbols does not equal the comprehension of aurally read symbols until about the fifth grade. Therefore even in the schools where the major emphasis is with the reading of print it is not until the child has been in school a number of years that he becomes comparably proficient in using printed materials as a means of gaining information. Dr. Young also reports that students comprehend more when the teachers make oral presentation.

If we consider Mr. Henry's statement in light of Dr. Young's report we certainly must see the necessity for the school to give more consideration to forms of reading other than the visual reading of printed word symbols. Mr. Henry stated that "a third of the high school cannot read on a fifth grade level." In light of this statement and Dr. Young's report one would conclude that a third of the high school pupils cannot understand communication presented visually. If then, in addition to this we consider Dr. Rankin's report of the amount of time which the schools are devoting to the reading of printed material as compared with the time devoted to increasing one's ability to comprehend the spoken word we must seriously question whether the schools are providing instruction which most adequately equips the child for his post-school life.

With the many technological developments in sound equipment, both for recording and reproducing, schools may develop libraries of sound recordings. This is especially true now that they are being produced on small strips. A general trend in this direction perhaps may be indicated by the wartime purchases of the recordings of "The White Cliffs of Dover." Many people who had the book also had the phonograph records because of the greater meaning which could be obtained where tone or color was added to the words. Let us then, accept these developments and incorporate them into our educational program with the full understanding that they are not mere aids to reading. They are really forms of reading. Let us make our reading program effective by helping the child to improve his aural

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The Superintendent As An Expediter

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The recent war brought into our common vocabulary a word that I like. That word is 'expediter.' You remember how clever and dynamic men were assigned to the task of finding and securing critical materials so that their factories could keep turning out war goods on a twenty-four hour basis. Often it became a battle of wits to see who got the scarce material.

I remember a friend of mine who was in this work and the clever game he played to get scarce materials ahead of other expeditors. He had a friend in the railroad yard. The friend would tip him off upon the arrival of a scarce material before the car could be spotted and reported into the freight office. My friend would go out into the yard, find the car, place his order

number and priority on it before it was spotted and put on the unloading siding. Things went fine for him till his trick was discovered and he was barred from the yards.

In a great many ways a superintendent of schools is an expediter. His task is to see that his schools are running at full efficiency. All too often losses of efficiency can be traced directly to his acts of omission or acts of commission. In no department of education is this more evident than in the field of special education for the hard of hearing.

In almost every school system it is easy to detect areas where there is a woeful lack between what is known and what is being done. This educational lag will vary from system to system and from state to state. In those systems where we find the best conditions, we find a superintendent and a faculty who are alert to their responsibilities.

Where we find an educational lag, we also tend to find a superintendent and a faculty who have some of the characteristics of the old farmer. He was being urged to attend a farmers' institute. But he, "lowed as how 'twarn't no use. I already knows better than I does."

To stir superintendents and faculty members from the above type of lethargy is, I take it, one purpose of this conference.

When a superintendent faces the responsibility of special education for the hard of hearing pupils in his system, this is what he will probably find. First, he will discover that some 10 per cent of his pupils are suffering from a measurable hearing loss. The amount of loss will vary from slight to almost total loss. The latter cases may not be in school at all. Second, he will find his faculty interested in the problem but unaware of its extent. They will also be unprepared to deal adequately with the situation due to lack of training. In the third place, he will find a small group of citizens aware of and intensely interested in the problem. He will also find a great group of parents who are unaware of the seriousness of the problem and so indifferent to it all.

Now what should an educational expediter do when he faces a situation like this?

In the first place, I believe, he should turn to his faculty. The first responsibility of any superintendent of schools is the selection and then the training of his faculty. It is possible for the regular faculty to handle adequately some 90 per cent of our pupils without impaired hearing. These are not the most needy cases from a physical standpoint. From a psychological standpoint, however, they may be just as desperately in need of help as it is humanly possible to be. The first task then, is to get underway a program of training for the regular faculty.

It is not within the scope of this paper to outline an adequate teacher training program in this field. That has been done by experts in former sessions of this conference. I will say this, however, enthusiastic leadership is a prime prerequisite. Given that, the results achieved by faithful teachers is little short of amazing.

The teacher will need to modify the content of her instruction little if any. She will need to recognize the limitations of the child with impaired hearing and modify the way she handles her materials and pupils.

The psychological effect of hearing loss is far more serious than most teachers realize. A 10 per cent hearing loss will retard school work unless

the child is exceptionally bright and alert. Those who have lost both their hearing and their sight say that their deafness is much the worse of the two afflictions. Deafness itself is not the condition which is to be most dreaded. It is the effect of isolation on the personality that is the damaging factor. For such a person, life can become a tragedy. Frustrated, unable to match himself with the life about him because he cannot hear accurately, a crushing sense of inferiority is likely to develop. The physical handicap has led to a more serious psychological handicap.

Children with impaired hearing are no different from others except in the loss of normal hearing. They want to live. They want to be wanted. They, with all the other millions, want to be useful. Their physical handicap should not close the door of opportunity to them.

The first step in the program is to get the child to recognize and accept his handicap and then help him plan a method of attack that will compensate for the loss. The tendency is for the child to deny the handicap and attempt to cover up. This leads inevitably to frustration for the handicap is real. Once the child has taken a realistic view of his handicap, however, much of the psychological or emotional effect is removed.

To capitalize on this improved attitude, the teacher must become an expert in two fields. First, she must become a sympathetic counselor. These children have many personal and social problems and they need the advice and counsel of a sympathetic adult. Then too, the teacher must become an expert in the retraining of these pupils. She must know much more about the nature of this instrument, hearing. She must recognize that a loss in the high or low register will make a vast difference in what the child is failing to hear. This will call for different methods in her training technique. If the child is deficient in the higher ranges, he will miss the consonant sounds. The final endings of words will be lost. Deficiency in the lower range of sounds tends to blur the vowel sounds.

Not only must the teacher recognize these physical aspects of hearing loss, but even more must she be conscious of their psychological effect upon the child. She must labor to build up feelings of adequacy and of success in the child.

If the program of instruction is adjusted to fit the needs of those pupils who show a marked deviation in their hearing, the great majority will show growth in school achievement comparable to normal children. The whole program cannot be shifted onto the teacher, however. The superintendent has other responsibilities.

To help all those with impaired hearing, and to help all the normal children and the teacher as well, much more attention needs to be given to the acoustical conditions in the classroom. Schools must not be located near industrial highways or noisy factories. Classrooms need to be finished in sound absorbent materials. We have a central radio system in our junior high school. The best radio reception in the building is in the wood shop where the walls and ceilings are finished in a rough sound absorbent material. Some genius should devise a method for measuring the energy that is wasted when teachers and pupils work in noisy surroundings.

The superintendent must also provide special equipment and trained operators for discovering those pupils who have hearing losses. Even skillful and observant teachers will miss many who can only be discovered

by the pure tone audiometer tests. Pupils tend to accept their hearing as normal. They often are not conscious that they have more difficulty in hearing than do other pupils. To do an efficient job, the teacher needs the diagnostic record that the pure tone audiometer gives. The teacher needs to know whether the pupil is missing the low vowel sounds or the high consonant sounds. She also needs to know the severity of the loss.

Pure tone audiometers and trained operators are within the financial reach of any large school system or of a combination of high and elementary school system or of a combination of high and elementary schools in most union high school districts. In our case, the high school bought the instrument and we borrow it.

There is another thing the expeditor must do if he is to eliminate the educational lag for his pupils with impaired hearing. He must secure a skillful lip reading teacher. There are cases in every system of any size that the regular teacher cannot handle adequately. For instance, take the case of Mary. That is not her real name, — she entered the first grade last fall, and could not speak a word. Her mother brought her to school that first morning with a mingled look of hope and dread in her eyes. "Could Mary come to school? She so needed to be with other children."

We enrolled Mary and told the mother we thought we could help her. That was seven months ago. Today Mary is speaking and she is reading with her group. She gets fifteen minutes a day of individual instruction in lip reading and in speech. The rest of the day she is in a regular first grade carrying on so normally that you would have difficulty in picking her out from the 37 other children. Dramatic? Yes! Worthwhile? Yes, and the best public relations story any superintendent ever had!

Mary is not the only child in our system with such a heavy handicap. Five years ago we enrolled another little girl in another first grade. She was a belligerent, unhappy repeater from another system. She mumbled a sort of jargon that only her mother could understand. She was large for her age and homely.

This little girl was fortunate in drawing a very sympathetic teacher that first year and one who had considerable insight into the needs of children with impaired hearing. By the end of the year, she had mastered the mechanics of reading printed word symbols.

When she entered the second grade, a speech reading teacher was secured. They worked together for thirty minutes a day learning to combine the subtle art of speech reading and the reading of printed symbols. Real progress was made. During the third year a hearing aid was secured and proved a great help to this little girl. This year she is in the fifth grade and made a score more than a year above norm when the class was tested in January with a standardized achievement test.

Her speech teacher, in reporting on her case, had this to say, "She is learning to take her place in the world, in a regular school, with regular children. She is happy as can be and shows no sign of feeling any different from any of the other children. In fact, she has more a feeling of superiority as she does excel in many of her school subjects."

I give you these cases because they illustrate the fact that there is important and necessary work for the special lip reading teacher. My teacher is on a part time basis. I consider her work invaluable. She handles

cases that only the expert can handle. She gets results with these seemingly hopeless cases and thus acts as an inspiration to all the teachers who have children with impaired hearing.

In every system of any size there are several pupils so handicapped by impaired hearing that they fail to achieve in their school work unless they are given special lip reading instruction. Their hearing is so imperfect that they must supplement it visually or they are in a constant state of confusion. The cost of such instruction is not prohibitive. The results are so satisfactory that no school superintendent should hesitate to investigate the possibilities for his system.

One of the tragedies of hearing loss is that it is so often progressive. When we find a bad case today, we can almost be certain that it will be worse five or ten years from now. To prepare children to meet this situation victoriously is a challenge worthy of the best of us. It is here that we are brought face to face with the woeful apathy in our communities toward the whole hearing problem.

The notion that children will outgrow their little defects creates more havoc than in almost any other field. There are cases of congenital hearing loss and some families suffer from hereditary deafness. By far most cases, however, are the result of disease and neglect. The most important single cause of acquired hearing impairment is meningitis. Other infectious causes are scarlet fever, measles, diphtheria, and mumps.

Neglect is the word that describes the cause for the majority of cases of hearing impairment. Neglect, not only of ear trouble in its incipiency, but also neglect of the conditions that lead to it is altogether too prevalent. Repeated colds in childhood, earaches and running ears, as well as the common childhood diseases are regarded far too lightly in respect to their effect upon hearing. Not until it is generally recognized that running ears, repeated colds, diseased tonsils and adenoids, malnutrition, and bad health habits are the forerunners of ear troubles will millions of children escape from one of life's worst handicaps.

Unless discovered and treated in time there is no cure for deafness. Children will not outgrow a hearing loss unless the cause is removed. For that reason the early testing of the hearing of all school children should become a routine part of the school health program.

The superintendents' activities must extend far beyond the walls of his schools if unimpaired hearing is to be the happy lot of his pupils. An effective program of hearing conservation must be carried into the homes of his community.

Dramatic stories of individual cases such as I have told you will gain an interested hearing. Only a continuous, well planned program of education will get consistent parental attention to the factors that prevent hearing loss in growing children. This preventive program of education should become a *must* in any well planned school health program. The school doctor, the school nurse, and the lip reading teacher will probably spearhead this drive for conservation of the priceless heritage of hearing, but the superintendent must act as the expeditor.

Now when the program above outlined gets underway, the superintendent will be impressed with many other implications that are brought to light. He will soon discover that there is a direct and casual relationship

between many cases of school retardation and hearing loss. In all too many cases these children are social problems as well. The facts are that few impairments scar the personality with greater unhappiness and cause more real tragedy than hearing impairment. A well balanced remedial and corrective program for children with impaired hearing will prevent or correct most of these cases to the everlasting benefit of the child and the community.

Again the superintendent will discover that there is a very direct connection between hearing loss and speech difficulties. In a recent survey of children with speech difficulties in our system, we discovered that 15 per cent of these children were also suffering from hearing impairment. The faulty speech habits complained of by the teachers are the direct result of inadequate hearing.

Of course there are other causes of inadequate hearing than physical impairment. Indifference, inattention, extraneous noise and confusion, as well as other causes may also contribute to inadequate hearing, and thus to improper speech. The emphasis upon lip reading will lead directly to a consideration of better speech habits for all pupils. And thus as the superintendent attempts to close the gap between what is known and what is being done in his system, he will find many and unexpected dividends over and above those gained for the children with impaired hearing.

The School Physicians' Approach to the Hearing Program

*Leila M. Kernkamp, M. D., School Physician
Montebello and Whittier Schools*

For many years I had been trying to confirm by the 4A audiometer test and by physical examination the teachers' suspicions of hearing losses in school children. It was, frankly, a disappointing job.

Of course the children with the obvious hearing loss showed up on this test as well as some others. The identity of the great number of children with high frequency impairments, many of whom had a marked educational handicap, was not revealed. It was disheartening to the teacher to be told no hearing loss could be demonstrated. Her experience had proved otherwise. I felt the classroom teacher was losing faith in the usefulness of the school health department and not without justification.

In 1942 one of my schools, the Whittier Union High School, purchased a Pure Tone audiometer. A sweep check test of the incoming class was made.

Individual audiograms were made where hearing losses were discovered. Now the hearing test began to take on new meaning. Further collaboration

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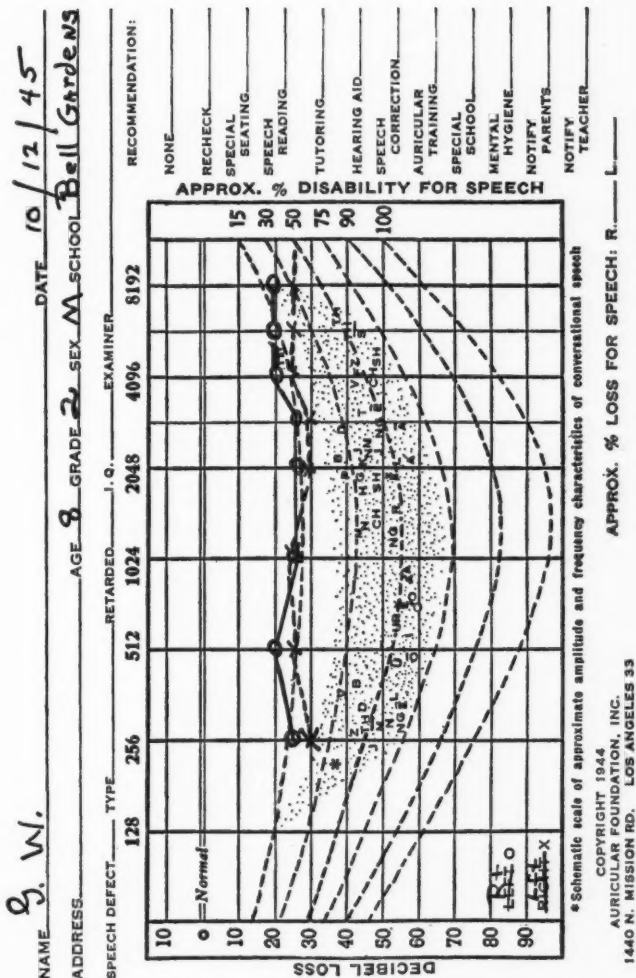


Figure 1. Audiogram Showing Loss in All Frequencies.

with Mr. Willard Hargrave, Director of the Auricular Foundation in Los Angeles; Miss Catherine Phelan, special teacher for the hard of hearing; and others gave added insight into the problem. It became apparent to me that an adequate physical examination of a school child must include

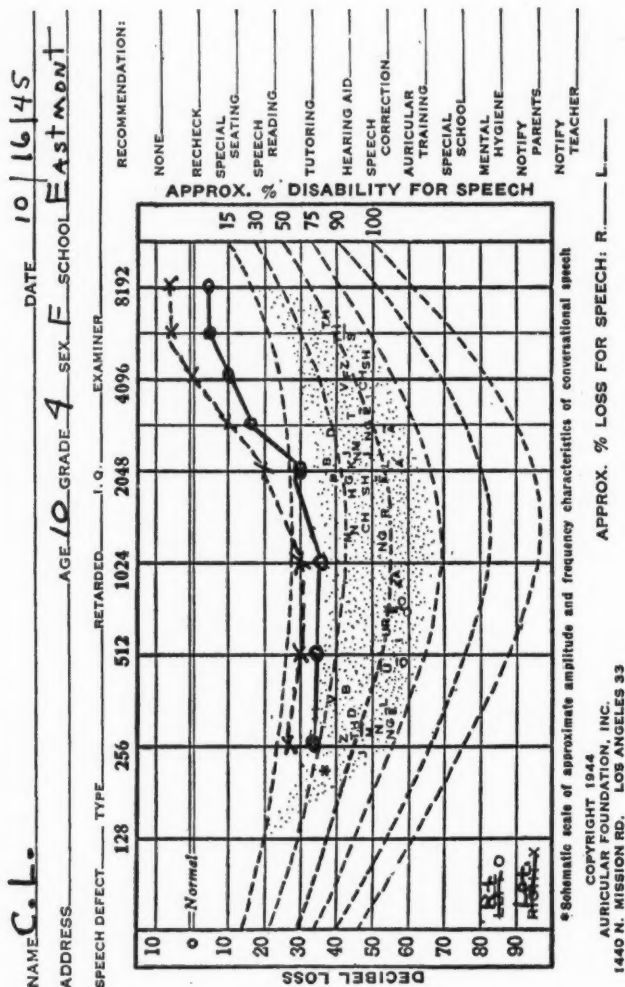


Figure 2. Audiogram Showing Loss in Low Frequencies.

a sweep check test on the Pure Tone audiometer. If the hearing condition is found abnormal an audiogram must be made. Certainly the results of this type of hearing test have more direct bearing on the educability of a child than some of the more accepted procedures included in the physical examination.

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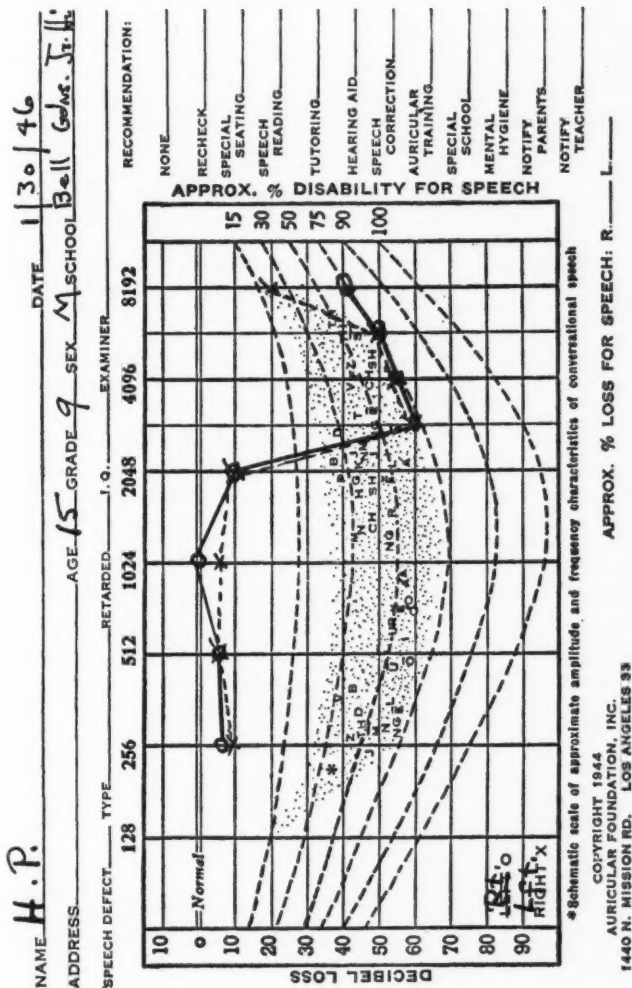


Figure 3. Audiogram Showing Loss in High Frequencies.

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What does the audiometric test reveal that makes it such a valuable asset? It indicates not only to what degree (in sensation units or decibels) the hearing acuity is impaired, but also in which areas of speech it may be more defective.

When the audiogram is made upon the form copyrighted by the

Auricular Foundation Inc. it becomes meaningful to teacher, parent and student (see figure 1). This form is unique in that it has a schematic scale of approximate amplitude and frequency characteristics of conversational speech. When the curve of the hearing loss is plotted over this scale one can get some understanding of the child's inability to hear distinctly and thereby an insight into his educational problem.

There are three common types of hearing losses found in the school child. In some all frequencies may be lowered; in the milder forms all that may be necessary is to bring the child closer to the source of sound (see figure 1). In another type the vowel sounds (lower frequencies only) may be involved (see figure 2). Probably the most common form is where the high frequency tones may be impaired making the consonants difficult to distinguish (see figure 3).

The audiogram is also helpful to the otologist, it points to the probable region of pathology. For example: the first type may mean something as simple as removal of hardened wax in the external canal. The second type may mean middle ear infection. The third type may mean, and usually does in a child, a partial blocking of the eustachian tube. This blockage may be due to a variety of causes. Diseased or enlarged tonsils and adenoids, sinus drainage which in turn causes swelling and irritation of surrounding tissues, allergies, regrowth of adenoid tissue are all common findings in our school examinations. This third type may also mean a more serious condition—that of nerve involvement.

This explanation is over simplified, but it is sufficient for the mother and teacher to get a beginning of an understanding of the child's problem.

Now that the hearing loss has been discovered and typed what should we do about it? Who is most concerned over this child? Obviously his parents and teachers. They are responsible for his guidance the full 24 hours of the day. It is these key persons in the child's life who need to understand his physical, emotional, and educational needs. All these facets of the child's life may be affected by a hearing loss. A common counselling is needed.

It is my privilege to work in the Montebello School system where these facts are recognized and provisions made to meet this need.

The parent, teacher and school physician sit down together at the time of the physical examination of the elementary school child to talk over the best means to achieve success.

If the child's behavior presents unusual manifestations the teacher relates this before the child or parent enter the examining room.

During the examination attention is called to some satisfactory conditions, as height, weight, teeth, muscle. This dispels fear and engenders a feeling of adequacy. It encourages the mother and puts her at ease. We discuss nutrition and health habits which are pertinent to his condition. After the child returns to his room there is a frank discussion of the findings and the procedure for medical care.

The child as a whole must be evaluated in order to intelligently advise the parent of the most valuable approach to the management of the handicap. Hearing losses require highly specialized treatment and belong in the hands of an otologist. There is often some underlying constitutional disorder, as allergy, which needs quite a different type of treatment than that

of infected tonsils and adenoids. When the condition is obviously a medical one, as allergy or faulty nutrition, more satisfactory results seem to be forthcoming when pediatric care is included.

A copy of the audiogram is given to the parent advising her to present it to the otologist or medical advisor. This audiogram is something concrete and meaningful to the parent. It has proved to be an excellent device to prompt parents to seek further medical or surgical care.

One of the nurses made the remark that the audiograms were such a splendid motivating device for the dilatory parent that she jokingly said she would like to forge a few in cases where hearing was not yet involved but the throats showed a frightful condition of neglect. In other words the audiograms talk and parents act.

It is necessary for the parents to realize that reclaiming hearing losses is a difficult, lengthy process and often the best methods fail. The longer they are neglected the less chance there is for recovery. A child will not outgrow a hearing loss.

Our program for prevention of hearing losses must start long before the school testing age. It needs to be based on education and prevention beginning in prenatal care and continuous throughout life. This is the everyday task of all those concerned with child welfare—our school teachers, public health nurses and doctors, family physicians and pediatricians.

It means teaching the young mother how to keep the child well, teach the value of diet, rest, avoiding exposures to colds and infectious diseases, immunizations, and the need to have immediate medical attention for an earache that persists even for the few hours or is severe. Prompt diagnosis and treatment of subacute or chronic ear infections will greatly reduce the number of cases with permanently damaged ears.

We realize that while the medical profession is attempting to correct the pathology the child still comes to school with the hearing handicap.

The hearing specialist has already met with the teachers to acquaint them with the emotional and educational needs of the child with impaired hearing. She has given them many practical suggestions. Some are as simple as placing the child in the front of the room with the best ear to the class. Encourage him to watch the faces of those who are talking. If the teacher will remember to stand still and away from the window while giving instructions or assignments, it would benefit the child who must rely on speech reading (reading the lips).

She has explained that there are different types of hearing losses and factors have to be evaluated for each individual child. Those children with a high frequency loss the sounds of "th," "s," "sh," "v," "f," "ch" may be indistinct or entirely lost. The word "beet" may sound like "bee," "leaf" like "lea," "swine" like "wine," "boat" like "bo." The word "stone" might sound like "own" and he would be confused trying to decide whether the teacher meant "stone" or "tone," "stowe" or "toad" or any of the several words which look alike.

Among the poor readers, speech defectives and repeaters are many children with hearing defects in the high frequency range. From the standpoint of perception, the consonants are most needed to give meaning to words. The child who needs to depend on lip reading finds that there are many words that look alike. Just as there are words that mean the same

—synonyms, and words that sound the same—homonyms, so there are for the child with impaired hearing, words that look the same—homophenes.

A study of the English language shows that 50 per cent of the words are homophenous. That is, the configuration formed by the organs of articulation presents the same appearance but have no similarity as far as meaning is concerned. This presents a problem for a child with impaired hearing that both he and his teacher fail to recognize. For example to this child the statement: "He is very proud," could appear as: "He is fairy brown" which obviously has no meaning and immediately sets up a state of confusion.

Because of homophenous words, the child must learn to think ahead of the speaker, to grasp a clue that will give a word its proper meaning. It may take him longer to understand because his receptive mechanism is slower. Restatement when the child fails to understand will be more effective than mere repetition.

This program would not have taken the concrete form that we now feel it holds in our school system if it had been left solely in the hands of the health authorities, namely the school physician, nurse or health coordinator. A trained specialist, having a keen incite into the educational, medical, social and vocational aspects of auditory deficiencies, provided the impetus to interpret such children's behavior and needs to his associates.

It is very difficult to visualize all the steps necessary in guiding a child through the channels of rehabilitation, when one has not experienced a life situation with such a problem. A true picture cannot really be gained from the printed page. A living experience is invaluable in service and altruistic merit. Fortunately, for our program, our hearing specialist has lived through hearing rehabilitation and is able to provide the first hand information that is so beneficial to the young lives requiring this special guidance.

In our system, the hearing specialist seeks out the children by puretone audiometric testing of children referred by the teachers due to their questionable behavior, or referred by the nurse because of medical history or parental requests, as well as routine testing of specific classes (reading readiness) or grades (3rd, or 4th, or 7th). Whenever losses of significant nature are disclosed, these children are scheduled for my examination. These children are kept under special observation, educationally and medically, until a satisfactory status has been reached. The hearing specialist sees to it that they are not forgotten.

The child with a hearing loss is handicapped more by a lack of understanding of his problem on the part of his parents, teachers and friends than by his aural impairment. We are apt to overlook the child who is doing satisfactory work in school, but who is under a terrific strain in order to maintain the pace. One often finds their finger nails torn down to the quick, a tired, strained facial expression. This should be cue enough to request an audiometer test to prove one's suspicions.

Every child needs to feel that he is part of the group, accepted and liked, considered adequate and competent. Ways of attaining this feeling may differ, as every child is unique. The needs of a child with a hearing problem are no different than any other child with a problem. All he NEEDS is to be UNDERSTOOD.

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Visual and Auditory Factors in Reading Success

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To anyone who is much interested in oral reading and auditory comprehension, the scant attention paid to oral reading and interpretation in many schools, is a matter of some concern. Children of the non-verbal type surely suffer from the emphasis upon silent reading more than do the better socialized children. Many eastern public and private schools, however, have begun to employ full-time remedial reading teachers to help solve reading problems.

Individual differences between children have shown us that some are awkward in motor coordinations, write or print poorly, draw with little understanding of form and spatial relationships; but it has seemed to us that most of our poor readers and non-readers were deficient in aural understanding, auditory perception, auditory acuity, or by whatever name you choose to call this X factor!

In a volume called *Motivation and Visual Factors* by Bender, Imus and others, based upon Dartmouth College studies at the college level, they found it necessary to make an intensive study not only of the personality,

but also of social, educational, physiological and psychological factors, in order to understand and to treat successfully the majority of referred college students. Their studies of some three-hundred students are perhaps the most intensive and complete of any which have been published, with the exception of Dr. Fernald's recent work on Remedial Techniques in Basic School Subjects, which covers the elementary and high school level.

The average clinical worker in the school set-up has neither the time nor the necessary funds for making such an intensive study, but there are certain indications to be culled from research using such data as are available and which may be significant in the study of the complex factors associated with reading difficulties.

I have therefore chosen a limited number of cases from our files at Pasadena Polytechnic Elementary and Junior High School, ranging from second through the eighth grade. For a control group we have selected cases equated for approximate age, grade and I. Q. but presenting no reading difficulty. As a third group for purpose of comparison, we selected an equal number of cases of the same grade and approximate chronological age, but who were outstanding in oral speech and auditory understanding or auditory perception, regardless of I.Q.'s.

First, as to the school itself: I should explain that it is a privately endowed school of about three-hundred and fifty children, ranging from the pre-school, pre-primary level through ninth grade. The school was originally founded by Pasadena residents including several college professors from the neighboring California Institute of Technology who wished to be able to transfer their children without question or demotion to any school in the East or abroad. Recently we have had some refugees and 'evacuee' children. Practically all children are from homes of above-average incomes, and as might be anticipated, where there is adequate nutrition, good care, good physical and mental inheritance, the I.Q.'s do average considerably higher than in an unselected group. With the present renewed emphasis on the mastery of the three R's, it has seemed as tho the school with a selected population might be able to offer some answers to educational questions better than a school with a less carefully selected group.

During the past school year our average I.Q. has been 125 for the school as a whole; for the ninth grade it was 129; this has varied within a range of a few points, but for the past six years, during which time we have given the group and individual tests the I.Q.'s have been within a range of 120 to 129. The children used in this study therefore, as remedial reading and control cases in the first two groups, are above average in intelligence or at least of high average ability, and the third group represents very superior children. The children with the highest I.Q.'s in this school do not present reading difficulties, except in rare cases where there is a visual or an auditory defect and we do not usually have children with marked motor disabilities. There are some left-handed children in the reading disability group.

We find as do most investigators, including the Dartmouth group, that no simple cause-effect pattern exists to explain the difficulties which we find in our poor-reader group, nor is the possession of good intelligence any guarantee that such difficulties may not appear in school children taught by any of the existing methods. Visual and auditory factors, more-

over, cannot be considered apart from personality, motivation, environment and other elements of a psychological nature. Unlike the Dartmouth group, who found no appreciable improvement in the quality of achievement in college after remedial instruction, our group of poor readers improved in two dimensions, viz; in personality adjustment and consequent happiness, and in reading skills (rate and comprehension as well as vocabulary and spelling). There was no noticeable change in intelligence quotients as measured by the Stanford-Binet.

One outstanding case of improvement in oral speech and aural understanding was that of an eighth grade boy who had begun to stutter rather badly during the previous summer vacation. His I.Q. was around 120; there was some sibling rivalry, there being a superior older brother in the family, and while the brother was away at preparatory school this boy's stuttering ceased except on rare occasions. On the occasion of President Roosevelt's death he read Walt Whitman's, "Captain, My Captain," with such feeling and expression as to be rather surprising in a boy of his age. A second outstanding illustration of a lad with excellent oral speech and aural perception is that of a boy in the ninth grade, with the highest I.Q. in his class, who organized the commencement program and assigned parts around a core representing the present world situation; it ranged from a picture of colonial times and the country's heritage through previous years, to problems of the recent war, probable outcomes, Bretton Woods agreement, Dumbarton Oaks accomplishments and post-war problems. This case is included in our superior or third group.

Another lad with an I.Q. of between 140 and 150 had been a slow reader and poor speller during the two years he had been in the school. The nature of his mistakes led us to suspect a hearing deficiency, and an audiometer test revealed that there was a slight reduction in the right ear and a twelve per cent reduction in the left ear. His auditory perception was very poor and aural understanding limited. Subsequent training brought him up two grades in spelling and his reading has much improved.

A child of the pre-primary age level presented such a serious speech difficulty that it was almost impossible to understand her in conversation. An audiometer test revealed that she was poor in tonal discrimination, pitch differences and her auditory attention span was very limited, although she was not deaf. She was in a summer speech clinic and made surprising gains during the spring and summer training periods. This is a child with an I.Q. of 142, with good visual and motor skill, but poor in auditory memory and auditory perception.

To understand in more detail just how the children selected for study differed in a qualitative way, it is necessary at this point to confine ourselves to the records of these cases in abbreviated form.

Of the cases of ten children referred this year to the remedial reading teacher, Case I was a child with a chronological age of 10-9, a mental age of 13-0, and an Intelligent Quotient of 121. He was in the fifth grade, as were most of our referrals this year. He was poor in motor coordinations, slow of speech, a slow reader, poor speller, placing at grade 4.1 in spelling, though in 5th grade; ranked 35th or near foot of his class in the Stanford Educational Achievement tests, placed at Grade 4.4 on Monroe Diagnostic

Reading Tests on word discrimination and word recognition. Poor in motor and auditory ability.

A girl in his grade, equated for age and intelligence and presenting no reading difficulty, tested high on visual, motor and auditory tests on the Stanford Binet and Educational Achievement Tests.

Case II. Chronological age, 9-5; mental age 9-10, I.Q. 104 or high average ability only; Grade 5. On Goodenough Drawing however, his mental age was 11-3 and his I.Q. 119, showing superiority on visual observation and visual memory for detail; also skilled in drawing. This was a refugee child with a distinguished Dutch ancestry; bi-lingualism undoubtedly slowed up his school record, but it was surprising to see how quickly he mastered the English language; there was an environmental factor which affected his rate of development, however; he had formerly been waited upon by a staff of servants; he was emotionally immature for his age, and even when he began to do well in English, he was below average for some time in oral and silent reading rate and comprehension. On the Stanford-Binet he failed on word association (rhyming) as might be expected; poor auditory rote memory for digits, below on vocabulary, reading memories and grammar as well as on verbal absurdities at his age level, although he passed other tests at the same age level. Remedial reading and spelling have greatly facilitated his adjustment especially since his mother has become accustomed to the American Way of Life.

An equated case was that of a boy who was average in visual and auditory as well as in motor tests, very even in performance, and presenting no reading difficulty.

Case III. Chronological age, 11-7; mental age, 10-10; I.Q. 94, or low-average ability and one of the few children with a low-average I.Q. in our school; Grade V level, his I.Q. on Goodenough Drawing was 108 or high-average on visual observation and memory for detail, but in the tests he did not excel in any field, visual, auditory, motor or otherwise. Poor motor co-ordinations in printing, copying designs; poor in manuscript and in cursive writing. He ranked near the foot of the class in educational achievement tests. On the Progressive Achievement Tests on which our children usually rate higher than on the Stanford Achievement, he was still below grade on language tests; on Monroe Diagnostic Tests he was poor on word recognition, stumbled in reading, showed poor auditory recognition of words; poor in spelling and in knowledge of phonetic values of words and blends, and showed some letter reversals and inversions. There was a question as to whether he should be allowed to go on in the school, as he made the least improvement of any of the ten who were given remedial training from January to June, 1945.

Another child in his grade of the same approximate I.Q. was, in contrast to this boy, a girl from an excellent family, the father being a prominent executive in a war industry; she was poor in visual and auditory memory functions but good in verbal understanding and use of language, with superior motor coordinations and up to average in her grade work with no reading difficulty.

Case IV. Eighth Grade. In this case the I.Q.'s have varied from 91 in the pre-primary group on Detroit Kindergarten Test to 115 on the Stanford-Binet Test in first grade; there was a drop to 107 in fourth grade

and an advance to 111 in Grade 5 and to 120 in Grade 8 on the Binet. This is an adopted child whose foster parents have separated; as an infant he was considered almost a perfect baby for adoption; his own father was well connected; he was devoted to his foster father but given by the court to the foster mother; he became emotionally disturbed and the conflict between loyalties has remained a problem with him throughout his school career. He did not read during the first two years in school; found his emotional outlet in music and art in which he excelled. From near-failures and being below in fundamentals through the early school years, he advanced to a grade placement of 9.8 on entering eighth grade. Here, the auditory memory and auditory perception seem to be the chief factors in addition to the emotional imbalance.

An equated case also ranging from 100 to 120 during his school progress, has presented no reading difficulty, but like the above described lad was excellent in drawing and in mechanical ability.

Case V. Grade 5. Chronological age, 10-4; mental age 12-0. I.Q. 116. Goodenough Drawing I.Q. 101. He was average on visual and motor tests, below grade in educational achievement by one year. Physically immature with high-pitched voice of pre-adolescence. Over-indulged at home; lacking in originality. On Durrell Oral Reading Tests he read only half as fast as the norm for his grade. On Silent Reading Tests he was below the norm in rate and comprehension; he was still below on standardized tests after six months of training but emotionally was in much better condition and had improved in attention in the classroom. Between the beginning and the end of the year he doubled his rate in reading. It requires more than one term to bring him up to average; possibly a year will do the trick. This boy simply cannot hurry; is easily fatigued and has a short interest span; is restless and immature; poor visual recognition; poor on both visual and auditory tests and shows little ability on motor tests.

An equated case in his grade, (a girl) was superior in both visual and auditory tests and presented no reading problem.

Case VI. Grade 8. Chronological age 12-9; mental age, 16-4. I. Q. 128. Was poor on the Goodenough Drawing Test earning an I.Q. of only 86 on this test; poor motor coordinations; best on verbal concepts and language tests; poor in reasoning ability and in dealing with abstractions; ranked near the foot of his class in educational achievement tests. Has advanced ten points in his I.Q. since entering the school a few years ago, and is much better in habits of attention and concentration. On the Stanford-Binet he was poor in grammar, reasoning, ingenuity, visual tests; much stronger in auditory memory and auditory perception than in visual and motor tests.

An equated case in his grade was that of a boy presenting no reading difficulty, but good on visual, motor and auditory tests, even though he was not equal to the best pupil in his grade, on the visual and auditory side.

Case VII. Grade 6. C.A., 10-11; M.A. 13-4; I.Q. 122. His I.Q. on Goodenough Drawing test was 98 and this coincided with his poor motor coordinations, poor visual imagery and visual memory on the Binet. Spelled only 50 per cent of the words for his grade correctly on the fall achievement tests; poor word recognition; word confusion; below average in oral

and silent reading rate on Durrell Reading Tests and poor in comprehension. This boy's father was with the Allied Armies in Europe; the boy came here from England, so had no language problem—at least he understood the "American" language. He has enjoyed a normal home life, fine ancestry, and profited very much by remedial reading.

A parallel case in his grade possessed superior visual memory and imagery, good vocabulary, good reasoning, good motor coordinations but was rather poor on auditory rote memory tests and on auditory perception.

Case VIII. Grade 8. C.A. 9-11; M.A. 14-0; I.Q. 141. This boy presents a history of slovenly speech; former stuttering and glandular imbalance; poor spelling and reading; poor motor coordination; awkward; left-handed; good in comprehension and verbal understanding; good in auditory tests as well as visual, excellent reasoning and power of dealing with abstract ideas.

A matched case was superior in oral speech and aural understanding, in composition, reasoning ability, originality and habits of sustained attention, and *right-handed*.

Case IX. Grade 3. C.A. 8-11; M.A. 11-2; I.Q. 125. A child of professional parents and strictly reared; limited in social companionship; the father has been unduly strict; as a result the boy is somewhat sneaky and avoids meeting issues squarely; left-handed, with poor motor coordination and only average on oral and silent reading rate and comprehension. On the Stanford Binet he was poor on word associations, verbal absurdities, grammar, word memories and vocabulary, even though he achieved some successes as high as the 13th year on other tests.

A matched case was a left-handed boy with superior auditory rote memory span, fine auditory perception, good in reading, superior in visual tests but with rather poor motor-coordination. The handedness has NOT interfered with reading, in his case.

Case X. Grade 2. C.A. 7-8; M.A. 10-6; I.Q. 137 on the Stanford Binet. On the Goodenough Drawing Test his I.Q. was 124 or superior. This lad was decidedly gifted in drawing as well as in visual observation and memory detail. The Stanford Binet showed superior visual memory but some weakness on the auditory side, better on pictured absurdities than on verbal ones. Keen sense of direction, along with his motor skill. Given Remedial Reading after the Winnetka system, he improved within the year, reaching the norms for his grade in reading, word recognition and spelling. He was poor in phonics, word understanding, verbal comprehension and sight reading at his grade level, at the outset.

Another child in his grade, equated for age and intelligence, excelled on visual and auditory tests and showed superior motor coordinations and skill in drawing.

SUMMARY. Most of the children in the Remedial Reading Group were better on the visual than on the auditory side; some were best on the auditory side or excelled in motor coordination or both, but not in the majority of the cases. We cannot therefore say that any one factor is solely responsible for the reading difficulty. On the other hand, the control cases exceeded remedial cases not so much in a quantitative way or in the number of tests well done, as in the quality of the performance, and in the fact that the reading group possessed a greater deficiency in a given trait

or characteristic. Poor auditory memory and auditory perception stand out as occurring with the greatest frequency.

The third group, consisting of well-adjusted children, superior in oral reading and aural perception were all in the high I.Q. category. The first chosen was a second grade child with an I.Q. of 133; superior in visual, motor and auditory tests as well as in oral expression and understanding.

In Third Grade, a child with an I.Q. of 153; superior in verbal expression and aural perception.

In Fifth Grade the five highest I.Q.'s were 175, 149, 147, 143 and 142. All excelled in oral reading and aural understanding.

Grade VI. Highest I.Q. 169, a boy superior in visual auditory and motor tests as well as in oral speech and aural perception.

Grade VII. Highest I.Q.'s for boys who were good readers and good in auditory perception were 157 and 166; both wrote superior papers in English.

The majority of our problem cases were boys and in fifth grade. Is it significant that the greater number of difficult cases were found just at the time when the physical growth curve strikes a plateau or slows up? What other conclusion may we draw?

We feel justified in stating that superior children, presenting no marked deviation from normal in visual, auditory, or motor tests or performance rarely appear as remedial reading cases; the possession of an above-average or average intelligence does NOT insure the child against a reading difficulty, however, as shown by the children who were deficient in some one sphere, which has undoubtedly had some bearing on scholastic achievement. The environmental factors certainly played a part in the case of the refugee child and the evacuee child; a broken home and the fact of being a foster child also played its part in one case, showing that a broken home may play a major role in the child's inability to concentrate and to develop good habits of work. The school and remedial reading teacher, the health department, the doctor and the psychologist may do much, but often the deciding factor is in the home, and in the cooperation which one is able to secure. Without it, even the best efforts may bring discouragement. By and large, any and all of our efforts to bring the child up to a level where he may achieve successes and compete with his group, make our combined labors worth while. The recognition of the fact of these and similar instances of remedial needs, reading and spelling difficulties in relation to school progress, have led to the employment of a full-time remedial reading teacher by the school.

ADJUSTING THE SCHOOL TO THE CHILD FOR AURAL READING

By Willard B. Hargrave,
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Whatever the approach may be toward a valid conclusion as to the cause or causes of retardation in reading achievement, there is one inescapable fact which stands predominantly in the foreground: too many children are falling short of the goal. Changing techniques; forced acceleration or "modern" as-the-child-wills procedure; phonetics or look-and-say methods, have all been tried with more or less indifferent results.

In the scientific world there is one general rule which is never intentionally violated. If a certain result is desired, all conditions leading toward that result are calculated and precisely controlled. Deviations may cause accidents, and while accidents may themselves point toward a new idea of value, the new situation brot to attention by the accident becomes controlled by the rule of precision.

There is apparently not the same general rule involved in the educational approach to a solution of the problem of retardation in reading. No formula has proved to be wholly effective for all children.

The majority of children do learn to read. They are able to interpret the symbols of speech as represented by printed symbols with optimum efficiency, leading to the belief that if the majority is thus able to achieve, it may well be that failure to learn to read effectively is not due to errors in methods or techniques, but to some deviation within the child himself.

During the past several years the writer has pointed out to students at Claremont College and to this Reading Conference that one of the major, if not the major cause of reading retardation is in the auditory side of the mental process. That in as much as printed symbols are and are intended to be representative of the sounds we speak and hear, we need look no farther than audition for a tangible clue. Slowly but surely, as the logic of this point of view becomes apparent, and scientific investigation of aural mal-function commands greater attention, are we beginning to recognize that *any* mental function involving language is primarily auditory in principle.

There can be no discounting of developments in research which enable skilled audiometrists to pick from the group those having difficulty in reading, or to question the findings which point to the fact that certain aural defects, hidden from view, predominate among poor readers and are rarely found among good readers.

In attempt to analyze the reasons why some children readily learn to read and others do not, various conclusions have been drawn. It has been found that poor readers total a larger percentage among those of poorer economic circumstances. The logic of this finding is apparent. Poor economic conditions presuppose inadequate diet, sub-standard health, irregularities in school attendance and many other circumstances tending toward a general below-par scholastic standing.

There is also a tendency for children from less than adequate homes to have more aural defects than those from homes which are considered

economically sufficient. Inasmuch as reading from printed symbols involves the auditory portion of the mind, the inclusion of all other aspects of economic circumstances to the exclusion of the significant aural defects seems to be missing the point entirely.

The development of a mind thru organized education is a process which is somewhat more complex than making a number of facts "stick." Adherence is not enough; there must be a coherence in which the purpose of facts as well as facts becomes integrated with the thought processes of the mind.

Various methods of teaching reading might be divided into two main categories: (1) Those which result in "adhesion" and (2) those which develop "cohesion."

An adhesive method would be one in which there is a dissimilarity between the agendum and the interpretative medium as there is thru reading print or writing by sight training alone to the neglect of the auditory phase of reception and retention of the idea the print carried.

Speech, either spoken or written, is communication thru language, and any method which primarily involves a sense not attuned to the aural process is a substitution and at best may result only in an illusory success. That such a method is at all workable is due to the flexibility of the human mind and not to any merit of the substitution.

A cohesion, rather than an adhesion, is the desired result in learning reading. The key to this is the fact that both the meaning and the mental interpretation of the printed word, letter by letter and syllable by syllable, (regardless of phonetics or lack of them in the spelling) is identical to the meaning and sound as heard from speech. As the mind has grasped the meaning of the word as spoken, so may it be learned from print with the eye substituting only to the extent of carrying the message of how it is printed on to the auditory side of the mind where there is a natural cohesion.

All methods of teaching reading start from one beginning: the eye. Apparently some of them end with the eye. The sum total of the result from all methods is that there must be a retention by the auditory portion of the mind else there can be no recitation of what has been read. The eye, having no counterpart as that of oral speech to aural reception, must depend upon an involvement of the auditory sense no matter how much audition has been neglected. It therefore becomes an adhesive process when sight is the principal tool educated in reading, while the other tool, audition, is expected to function normally when it may have had no direct relationship to the process.

The neglect, or at least the failure, to recognize hearing as a major tool for learning has caused a general overlooking of the significance and importance of slight aural defects which by no means are serious enough to class them broadly into the group of hard of hearing, yet which have a bearing upon reading ability. These losses, mostly of a type and degree defying detection except by precise audiometric measurement, are playing a role of such proportions in reading retardation that until they are recognized and techniques developed which counteract them, most of our efforts toward better methods in the teaching of reading will have been relatively in vain.

Basically these aural defects are not one of degree in the sense that louder speech is necessary. They deal, rather, with enunciation and articu-

lation, even to an extent which seems to be contrary to accepted rules of the range of speech cycles. Such an authority as Edmund Prince Fowler has declared that certain cycles of speech sounds are most important in the learning of speech but are not required in the retention of good speech. He does not elaborate upon the possibility that these losses may also cause some involvement of the *use* of speech other than in oral expressions.

The recognition of an auditory symbol as represented by a printed symbol is somehow involved with certain qualities of hearing not heretofore suspected. That this condition does exist has been found by too many persons to be discounted as entirely false. There is a preponderance of evidence to show that very slight defects in the higher frequencies of speech sounds, are to be found almost without exception among poor readers whose mental development is otherwise normal.

Attempts to explain reasons why certain deviations from normal acuity in aural reception have a counterpart in poor reading achievement have not been satisfactory. No one is sure that pathological conditions follow any general pattern, or that there are any pathological causes for the defect. No one has satisfactorily explained just what the over-all acoustical conditions of the class room may have to do with it.

It is interesting to note, however, that the defects may be termed as perceptive in nature, and in following out a theory along this line we find that the rule of masked-out intelligibility for speech is to be considered.

Inasmuch as these significant defects are not accompanied by any impairment of the low tones predominantly affected by extraneous noise, the defective portion is most affected under noisy conditions. The weakened perceptive ability for speech articulation, still further aggravated by the difficulties engendered by noise, create a situation which is far from an ideal one. If it could be certain that the cause of the defect is due to some insufficiency of the neural pathway to the brain, and that this is symptomatic of a less fluid transition of reception into the perceptive phase of thot, then the logic of the theory would be certain.

Until a definite conclusion can be drawn from the evidence already known, it appears that there could well be an adjustment of acoustic conditions of class rooms tending toward more favorable hearing even for the so-called normal. The distracting influence of noise, readily acknowledged in many walks of life, appear to be a factor in reading achievement, particularly for those whose aural defects are most affected by it.

For strangely enough children with hearing losses commonly termed "conductive," and in which reverberent noise is not a handicap, have a smaller percentage of reading failures among them than the so-called normal of hearing with the slight but significant defects in the higher frequencies.

It is a classic in otological literature that the masking effect of extraneous noise is detrimental to intelligibility. If it is to be accepted as tenable that thinking in language is a part of the process of reading of language then it must be assumed that this deleterious effect upon good reception must also be less than desirable for good perception.

The story, intended as a joke, has been told of the student who, having finished reading aloud a certain lesson, was asked by his professor to explain the meaning and replied:

"I'm sorry, sir, but I wasn't listening." His difficulty was somewhat

of a variation of the old one of having it "go in one ear and out of the other."

That there is no cohesion somewhere along the line is most evident. The eye has functioned, there is an oral response in keeping with the printed symbols, yet the idea expressed by the symbols has not registered satisfactorily. For all practical purposes they are "not listening."

There is a form of temporary unawareness to sound which has been erroneously termed "psychological deafness," in which the attention is somewhat difficult to arouse. The drum head will vibrate with the energy of the sound waves; the ossicular chain will transmit these vibrations on thru the oval window into the fluid of the inner ear and set up impulses which will activate the nerve endings in the Organ of Corti. Mechanically the hearing will be perfect. Yet somewhere along the neural pathway there will be an involuntary blocking as the mind, occupied with something or other, fails to heed the signals.

It has been pointed out before in these lectures that there is a counterpart in vision, in which entire paragraphs or pages have been scanned with routine eye movements, but with so little of the message reaching the interpretative centers of the brain that re-reading was necessary.

It is very evident that if the purely physical impact of sound vibrations can be ignored by the auditory interpretative process in which a direct channel is stimulated, sight cannot be expected to do any better.

The one who is "psychologically deaf" to sounds is *able* to hear but actually does not from a practical standpoint because the attention is elsewhere. It is therefore logical to suppose that if there can be a complete dysfunction of a normal process, there can also be malfunction in various degrees. Distractions of the attending receptors, whether sight or hearing, reduce the perceptive abilities in like manner.

This fact can be illustrated by making an attempt to "think" a familiar melody while an orchestra is playing something else. It is almost impossible. It is a little less so if the melody is hummed, and becomes much less difficult if sung aloud. If, however, the melody is not at all a familiar one, even singing to drown out the music and orchestra will be in vain.

Thus it is with the attempt on the part of the child with a slight malfunction, of audition to read a not too familiar grouping of symbols while distracted by a number of extraneous sounds and movements. Under such circumstances it is truly remarkable that the mind of an immature child can grasp anything at all from the hodge-podge.

The solution to the problem of reading retardation among our children requires more analysis of conditions than we have had in the past, together with a more complete educational diagnosis of the tools for learning of each individual child. We know that the finest of cameras, using the best of film, will not take good pictures if conditions are poor and if adjustments of focus and exposure are ignored. We know that the finest of recording equipment, using the best of records, will not reproduce under just any conditions.

To expect a child with some seemingly unimportant deviation from normal automatically to adjust himself to an environment which causes his deviation to become a handicap, is to expect the impossible.

In the business and industrial world there is a growing awareness of

the importance of acoustical and lighting conditions where any creative or intellectual work is done. Certainly the school systems have produced no evidence pointing to any other conclusion.

Adjustment of the school to the child's auditory condition is not as easy as it sounds. Little can be done for a long time about bad acoustical conditions either inside or outside the school house.

Yet the adjustment is possible. It involves, first of all, a most careful examination of the child's auditory acuity thru precise audiometric measurement. Deviations thruout the range of speech must be carefully ascertained and analyzed.

The most important phase of all is in obtaining and having confidence in the person who is to diagnose the condition of the child's hearing. In a broad sense the art of obtaining a precise audiometric measurement of a child's hearing may be likened to a psychological examination. Most anyone with a modicum of instruction could administer the test. Evaluating the results would be something else again.

Dial twisting, and glib use of terminology are not sufficient training to qualify anyone to speak authoritatively of a child's aural capacity or incapacity. Perhaps in no other field involving the welfare of the child is the old saying that "a little knowledge is a dangerous thing" more applicable.

There is little hope for adjustment of the school to the child's auditory capacity where the antiquated, inefficient and limited scope of group testing is continued. Diagnostically the results mean nothing, either medically or educationally. The inventor and the manufacturers have for years admitted the inefficiency of the phonograph-speech method of testing hearing, yet so strong was the propaganda in its favor some twenty years ago, that even the research of our foremost authorities in aural problems has not relegated all of them to the junk yard where they belong.

An Aural Reading Problem

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In 1870 Goltz called attention to the fact that the inner ear contains two functionally different organs: an auditory portion, the cochlea; and another portion which he alleged is non-auditory in function but which serves to provide us with a "sixth sense," viz.; equilibrium. That is still the prevailing theory. Tests of hearing are predominantly based upon it, altho the theory has never been fully established. If it were found to be incorrect, that discovery might have the effect of releasing new types of investigations concerning the nature of hearing and of the sense of equilibrium.

In June 1944 I published a challenge to the theory that the semi-circular canals are non-auditory in function. Included within that challenge was a related questioning of the idea that the sense of equilibrium is a function of those organs. My challenging of the theories is based upon unexplained facts which seem to stand directly in the way of accepting them. For example, in post-mortem examinations, the totally deaf have often been found to have *no semi-circular canals*. In life the people were totally deaf, but they showed no history of lacking a good sense of balance. On the contrary some of the people whose post-mortems revealed they lacked semi-circular canals were in life professional dancers. General observation reveals that among the totally deaf there is no particular evidence of poor balance, whereas, among the hard of hearing poor balance is often observed. Furthermore, if equilibrium is determined by the canals, one wonders why it takes babies as long as six years to perfect their "sense of balance." The ear mechanism is known to be fully developed at birth.

It has been observed that when hearing exists in animals or reptiles they have semi-circular canals, but in the fly or other insects no hearing exists, other than that which is obtained thru tactile sense impressions. However, no more perfect balance can be conceived than that of the fly. It matters not at all whether it walks on the ceiling or on the wall, whether it faces downward or upward.

Extensive investigation and experimentation have led me to believe that equilibrium is a product of rhythm and harmony with the rotational movements of the Earth. It is not a conscious function. It is, rather, a form of behavior which is gradually achieved over a period of years. It is in process of development at birth, but it is not fully developed before about the age of six. We assimilate the capacity of balance without questioning.

Personal research conducted over a period of some thirty years and consisting of photographs of babies taking their first steps and following thru until they walk in both directions indicate that babies must adjust themselves to the rotational speed of the earth eastward in the Northern Hemisphere and westward below the equator. Before we can hope to walk we must develop our latent senses of rhythm and harmony in order to have the strength with which to overcome and resist the natural forces imposed upon us.

Intoxicated people lose their sense of balance or space conception when their resistance is decreased from the normal as a result of the stimulants. Their ability to walk becomes in effect similar to that of babies when the babies are first learning to walk. If the semi-circular canals really constitute the organ of equilibrium then according to their supposed function, we should not under such circumstances experience loss of balance or a feeling of dizziness.

We have gained our equilibrium in spite of the semi-circular canals rather than because of them. If we had no semi-circular canals we would have no hearing, but we could have perfect balance. Equilibrium is really a space-time function of hearing and sight. *It is a fourth dimension of hearing.* In other words the semi-circular canals are organs which for sight and hearing establish our position in space as a result of outside air disturbances (i.e. sound) in space in relation to our own position. Destruction

of the fluid of the semi-circular canals causes loss of balance indirectly, because our space-time function is upset. It can be regained as a re-acquired function over the same period of time it takes a baby to acquire its equilibrium.

Our balance or equilibrium is chiefly controlled thru the spinal column and its fluids which also form a part of our hearing sense thru bone conduction. I am firmly convinced that the semi-circular canals serve a time and space function in hearing (a fourth dimension) and that they affect our equilibrium sense only when space-time hearing has become defective.

There are cases, as a result of disease, and particularly as a result of spinal meningitis, wherein bone conduction of hearing is totally destroyed. Wherever this is the case, we find poor equilibrium. Those who have become deaf depend for their equilibrium or for their sense of direction purely on their sight. At night when this sense can no longer serve them, they become unstable and will invariably follow an easterly direction. This is due to the earth's rotational pull toward the east. A person under normal conditions is not comparably influenced, at least not consciously.

Poor equilibrium has been supposed to be a result chiefly of disturbances within the semi-circular canals. Hence the problems of balance and of head noises are commonly considered as "ear problems." Actually, in most cases, poor equilibrium and head noises are direct *results of a spinal injury*. This has been established by the measurement of several thousand cases. More than fifty per cent of them were proven to be the result of a fall which produced a spinal injury.

When deafness is accompanied with poor equilibrium it is readily recognized in the character of the person's walk. It manifests itself in inharmonious rhythm when the person is walking either on a relative level or up and down stairs. For instance, when the hearing of the two ears differs radically, usually bone conduction is sharply diminished or even totally absent on the side of the ear which is most affected. As a result, the arm on the affected side will not swing in rhythm with the opposite arm. And in stepping forward or down the person will not apply the same pound-pressure with the foot on the side of the affected ear as is applied with the opposite foot. In fact, in such cases we find that a person will always step up to the sidewalk curb or down from it with the foot on the side of the good ear. This holds also for going up or down stairs. The person will always lead with the foot on the side of the good ear. Conscious uncertainty of balance will be noticeable in cases of this kind. There will be a decided tendency to hold to a banister when going up or down stairs. However, should the banister be on the opposite side from the good ear, the person will choose to cling to the wall on the good ear side, ignoring the banister.

These observations can be substantiated by recording, thru the use of an acoustical analyzer, the actual rhythmic swing of the arms and the invariable pressure and timing in walking. X-ray photographs of the spinal column will reveal the reason for the defect in balance. In most cases one leg will be found to differ from the other in length. Once such a defect is known simple corrections can be made. The height of the heel

of one shoe may be reduced or increased. And specific treatment for the spine may be taken. Girdles may be prescribed and worn, and medication under a physician's prescription may be taken.

The importance of bone conduction in hearing is not always recognized or understood. I have recently conducted some interesting experiments having to do with certain aspects of bone conduction. On many occasions I have been asked why the American Indian hears better than does the white man. Since I am in no position to establish the validity of the assertion that the Indian does hear better, I accepted the statement for the time being and set about to investigate how the alleged better hearing might occur. For example, if the Indian hears better than does the white man is it because the Indian hears thruout a more extensive range of sound frequencies or does the Indian require less than the one decibel of sound pressure which is necessary for a white man to hear?

One possible influence of the Indian's hearing is suggested by his feather headdress. The Indian chief's headdress always consists of a headband with its many eagle feathers independently fastened into separate holes or pockets. When in full dress, he has an array of feathers continuing down his back, but these are still a part of the headdress. This conspicuous array of feathers undoubtedly serves a very definite purpose, since the closer we come to nature the more we find both reason and purpose for all things. I can not imagine a race living closer to nature than does our American Indian. Therefore I would suspect a reason for the headdress beyond the mere decorative function which it undoubtedly has. Therefore, I asked the question, "Does the feather headdress serve the Indian as a hearing aid?"

It is obvious that the headdress forms an intercepting medium of considerably greater circumference or depth than that of the skull itself. The headdress unquestionably catches sound waves which normally would pass above or by the sides of the head. Since we can hear only the sound vibrations which actually reach our middle ear, any instrument that reflects the vibrations upon the ear receptor will tend to magnify the hearing. This can readily be tested by anyone who will cup his hands behind his ears and then note how much clearer and with how much greater volume the sound is received. The Indian's headdress forms a greater extension than do the cupped hands. It can be appreciated then how much sound is intercepted by the headdress.

However, at first glance, feathers do not appear to represent a good vibrating medium for sound reception. They seem rather to be a sound absorbing medium. Closer investigation reveals that the main stem or shaft of a feather embraces the most vital and important agents for sound transmission. The spinal rod or shaft of the feather proper branches off in an innumerable series of small barbs the extremities or sides of which are covered with the very soft, fine, fluffy hair-like extensions called barbles. This structure reminds one of the internal ear. The inner ear contains about 23,500 rods. At the end of each rod there is a hair-like cell from which project twelve to fifteen hair cilia into the fluid of the cochlea. According to the Helmholtz resonance theory of hearing, these hair cells function to separate the many frequency values in sound and to transmit them, thru nerve fibers, to the base of the rods and thence to the cochlear

nerve and the brain. The tail feather of the peacock is strikingly similar, altho in magnified size, to the structure of the inner ear.

If it is true that thru its tiny hair cells the human ear picks up the sound vibrations, then is it not reasonable to suspect the possibility that the tail feathers of birds function in a similar manner to stimulate bone conduction of sound? It can readily be observed that it takes little air pressure to cause the fine feathers to vibrate. Every moving hair-like branch essentially must give off some sound into the main shaft of the feather, which is substantially hollow, altho there are minute skin-like cells within it. The moving air particles within each feather shaft cause periods of vibrations to exist, which must be discharged or dissipated in one form or another.

To test this idea and to determine the character of sound transmission, if any, I conducted a detailed experiment. A large jar was partially filled with water. A Piezo electric microphone was mounted in the jar and peacock feathers were arranged so the stems penetrated the jar cover from the exterior and extended downward into the water. The jar was thoroughly sealed to prevent external sound vibrations from striking the microphonic cell thru any other medium than that of the feathers. The procedure of testing the sound pickup and conductivity of sound thru the feathers to the microphone consisted in producing musical sounds as well as speech sounds thru a loud speaker mechanism. The intensity of the outgoing signal could be observed by a decibel meter arranged for that purpose. Another decibel meter indicated the sound pressure produced at the microphone within the jar. At the same time the sound from the microphone within the jar was recorded on a phonograph disk which could be compared with the outgoing signal. The results show that sound is definitely conducted thru the feathers. Consonant sounds predominated in the recording of the transmitted pattern. The success of this experiment led to further experiments conducted with live peacocks, a turkey, and a pair of fantail pigeons. These studies indicate that substantial amounts of sound stimulation are conveyed to birds thru bone conduction by way of their tail feathers, in the same general manner that man hears thru his feet by way of his spinal column if he has not lost his ability to utilize bone conduction. These simple experiments tend to increase my belief in the validity of the Helmholtz Resonance Theory of hearing as contrasted with the so-called "telephone theory."

I should like now to discuss briefly some aspects of hearing measurement. A whisper test has been used on occasion in an attempt to measure the hearing ability of school pupils. This is not a good test. The whisper involves no use of the vocal cords. It is without resonance and hence lacks in speech quality. Therefore it cannot be regarded as a speech hearing test. In like manner I have been led to question the adequacy of many audiometric testings. Audiometric readings for audibility thresholds only, are merely pure-tone measurements. And the ability to hear pure tones is vastly different from the ability to hear the complex tones of speech patterns which are the practical needs of the pupils. An imperative and most valuable supplementary test which measures *sound pressure tolerance* should be made.

To make a *sound pressure tolerance* measurement, first the usual au-

audiometric reading is taken. Then a second reading is taken within the range of 64 to 4,096 cycles per second. Within each of these octaves the attenuator is set at the point of the patient's threshold of audibility and it is then slowly turned up until the patient indicates definite discomfort. These points of discomfort are known as the thresholds of pain. They should be carefully recorded.

The difference in decibel readings between the threshold of audibility and the threshold of pain within each octave is known as the limit of *sound pressure tolerance*. The thresholds of pain in hard of hearing persons vary widely. If the sound tolerance is less than thirty decibels, it must be concluded that a standard hearing aid which normally functions from twenty to eighty decibel pressure will create pain or at least discomfort and will result in sound distortion. Hence a hearing aid should not be recommended until a tolerance area is adequate. It is interesting to note that this can be provided thru the use of controlled frequency records. Acoustic records for this purpose are now available in thirty combinations and can be prescribed to accommodate many conditions of deafness. These records were originally developed in 1937. They have undergone extensive experimental validation since that time. The principles of hearing exercises do not differ fundamentally from those of vision exercises which have proven to be so worthwhile. It is interesting to note that a brief test period for a short term of only ten days is sufficient to determine whether the audiometric training will be helpful.

An important aspect of hearing measurement is the type of instrument used in making the tests. As pointed out earlier, I have been led to question the adequacy of many audiometric testings. There is need for a battery of tests which measures many phases of the hearing process. For example, it is necessary to measure not only the threshold of audibility thru out the range of customary sound stimuli, but also the Sound Pressure Tolerance must be ascertained. These measurements should be made for each ear and for the ears operating in binaural coordination. Supplementary to such data there should be "Field Hearing Measurements," i.e., measurements to determine ability to discriminate speech sounds coming from distances up to say thirty feet.

Furthermore, since the principal reason for concern with hearing is that one may perform aural reading of speech sounds, it follows that careful study of hearing conditions entails some consideration of speech. Recordings of the actual hearing accomplished by the patient and the ability to adopt a hearing aid to serve the specific hearing needs are also desirable accompaniments of a hearing measurement instrument.

With all these needs in mind, I undertook to construct an instrument which will adequately perform all of those functions. After much experimenting an instrument was devised which meets the requirements. We call it the HYDROMEDIAL ACOUSTIC RECORDER AND ANALYZER. It is essentially an acoustical instrument by means of which all forms of hearing and of speech defects can be accurately measured and recorded. Similarly, it provides a means for checking all forms of electro-mechanical functions of hearing aids and for measuring their sound output values. The Hydromedial Acoustic Recorder and Analyzer is enclosed in a cabinet fifty-five inches in height. The lower part is divided

into four independent acoustic cavities, thereby making feasible the localizing of sounds of each independent speaker unit. A fifth speaker unit is located in the bottom on the cabinet. It is used to direct sounds against the floor for the purpose of producing a pre-determined short echo. This has a distinct advantage when testing with an open sound source where delayed echoes are undesirable which so often is the case in forms of nerve deafness. The multiple series of speaker units makes possible the measurement of the patient's ability to identify the direction of the sound source (Place Theory), or his ability to tolerate sounds of considerable volume or mass. The upper part of the instrument cabinet contains an oscilloscope, a high quality recorder and play-back device, controls for all the various parts of the instrument, and, since deafness varies often with the weather conditions, a barometer has been included. The knowledge of barometric pressure at the time hearing tests are made is of great value.

We shall not attempt to give a more detailed description of this new instrument. The point we wish to make is that for the first time in man's history he can now make a measurement of his hearing which considers all of the matters of importance in determining how well he receives sound stimuli. This is a pre-requisite to a valid program for aural reading development.

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Division III

Visual Reading

Visual consciousness or awareness is a matter of development, which is far from complete when a child enters school. Unawareness or immaturity shows up in visual test results as reduced acuity, either constant or in the form of suppression of vision in one eye or both eyes, lack of muscular coordination, lack of ability to fuse or unify the images of the two eyes, and the presence of psychologically non-receptive areas around the physical blind spots in the eyes.

Clare Kerr

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VISUAL READING

Introduction

So much of the customary educational procedure is based on the use of sight that visual reading is unquestionably a matter of major concern. Studies of the vision process have revealed that many of its characteristics are learned as various seeing tasks are performed. Obviously, then, there is considerable likelihood that inappropriate and ineffective procedures will be practiced unless great care is taken to supervise and direct the learning of efficient seeing behavior.

The term, "Vision Education," has been coined to express this concern and to identify the practices and materials used to develop good seeing. The paper by Dr. Spencer on "Vision Education: How can it best be accomplished?" is largely composed of extracts and citations from papers on this subject previously reported before the annual conferences and in this series of yearbooks.

Much has been said concerning the alleged immaturity of the eyes of children in the primary divisions of the schools. So long as the implication referred to the anatomical or physical structure of the eyes, or the brain it was not convincing. The brain is one of the most mature organs in a young child's body. The retina is really a part of the brain. Since seeing is practiced throughout the period of infancy, one can scarcely think of the muscles as being immature or undeveloped. But when attention is directed to the fact that efficient seeing is developed through learning, a new factor is proposed.

Miss Kerr's study of "Visual Immaturity at the First Grade Level" is a pioneer venture in this regard. Her conclusion that substantial restrictions of the visual fields is the, "rule rather than the exception in grades one, two and three," is something of a shock. However, the evidence she gives that children in those grades can be substantially aided in their pursuit of efficient sight gives hope that this important procedure may become common practice.

VISION EDUCATION:

How can it best be accomplished?

Peter L. Spencer, Ph.D.

Professor of Education, Claremont Graduate School

In a paper prepared for the 1936 annual reading conference at Claremont Lloyd Mills, M.D.[®] made this pertinent comment, "Have you ever considered that although fully eighty-five per cent of all educational

experience is visual and that you are trained to walk, to eat, to taste, to smell, to use your hands, and to form correct habits of elimination, you were never trained to the conscious use of that most vital guiding sense, your vision?" He continued the statement as follows: "Yet there is a fixed order of seeing, based upon the actual structure of the human eye, and the establishment of normal patterns of sight and a method 'How to See' should be among the first facts taught to every child."

A second paper prepared for that conference by H. L. Fuog, Opt. D. © reports an investigation conducted under the auspices of the National Research Council of Optometry to try out, "a non-instrument method to indicate the cases of seeing *inefficiency* from the differential signs revealed to an intelligent observer," and "To determine and develop a clinical or corrective program of training methods for the correction or elimination of the seeing faults and note such benefits that would accrue in the improvement of the slow reader."

A third paper for the conference prepared by John P. Lordan, M.D. © and then secretary of the Los Angeles County Ophthalmological Society, discusses, "The Visual Ability of Children as a Factor in Modern Education." Dr. Lordan states, "The percentage of failures in school due to faulty vision is appalling, and as our diagnostic instruments for detecting lowered visual efficiency are improved we can expect this percentage to increase. The visual inefficient is tremendously handicapped both in school and adult life."

These papers are cited largely to emphasize the point that for many years there has been awareness that certain visual deficiencies interfere with educational development, and that, at least some of them can be ameliorated or possibly eliminated by teaching better ways of seeing, and that experiments conducted within the public schools indicate that instruction designed to that end is both feasible and fruitful. The papers were produced by ophthalmologists and optometrists. Psychologists and educators collaborated in the reported experiments. Hence the evidence indicates that for years we have known that Vision Education is necessary and that it can be constructively practiced. We have been remiss in not putting that concept into action.

The term, Vision Education, may need explanation. For some time much has been said concerning the need for and the advantages of so-called "visual education." Visual education refers to the *use* of the visual process as a medium for instruction. In practice visual education assumes an adequately functioning visual process and the materials and procedures are designed to make use of it. Vision Education, on the other hand, connotes a wider and substantially different coverage. Visual education may properly be conceived as one aspect of Vision Education, but Vision Education has its principal concern elsewhere. Vision Education is dedicated to the development of more efficient visual processes. It is founded upon the concept that vision is the development of innate seeing abilities. Efficient vision is a product of learning. To see is native, but seeing efficiently is an achievement. Vision Education is, then, that phase of education which has for its purpose the development of efficient seers. We shall not attempt at this time to delimit it farther, but it is evident that basically Vision Education

includes anything and everything which affects good seeing. There are, however, major points for concern.

The investigation cited above and conducted by The National Research Council of Optometry as reported by Dr. Fuog considered two important aspects of the field. The first is, can "intelligent observers" detect instances of inefficient seeing. The second is, the development of procedures for remediation of cases of inefficient seeing.

Dr. Fuog's report distinguishes between evidences of inefficient seeing, as indicated by so-called "reduced vision," and those indicated by abnormal "effort expended in seeing." Any seeing consumes energy. Efficient seeing presumably consumes less energy for the same or comparable products in comprehension. Evidence quoted in the report shows that whereas only some 18 per cent of those with "reduced vision were visually inefficient"—86 per cent of the "frowners" were visually inefficient, 98 per cent of the "afternoon nerves type" fell in this class, and 94 per cent of the "faulty fixators" joined them there. The test for seeing efficiency used in the study consisted of a one hundred-fifty word text of printed word-type reading matter, and an objective type test of comprehension. The adequacy of this particular criterion may well be questioned, but the fact is important that extremely high relationships were found to exist between certain readily observed evidences of "effort" and evidences of poor efficiency with a prescribed visual task. The inference is that "intelligent observers" can render valuable assistance in detecting probable instances of visual difficulties.

An observation pertaining to this point is expressed in the paper by Dr. Lordan. He says, "Too often is the child sent to the eye doctor with the complaint 'The teacher says his eyes are bad.' He is then given an examination to determine the refractive error and muscle balance. These being found normal, the child is sent back to school with the report, 'the eyes are not at fault.'" "A far better plan would be to have a standardized form on which each of the above (teacher, school doctor, and nurses, and the private physician) could note their separate findings and at the conclusion of the examination the child's difficulty could be more logically diagnosed and treated."

Two factors seem to be pertinent to these suggestions. The one is the development of the "standardized form" which Dr. Lordan mentioned. The other is the development of the "intelligent observers" posited by Dr. Fuog. Neither of these are likely to occur unless some organized effort in the field of Vision Education is addressed to that end.

Bearing on this point but with a slightly different emphasis, Louis Jaques, Opt.D.,[®] spoke before the 1937 annual reading conference at Claremont. Among other things he said, "To my mind efficient seeing is a skill and a child may or may not have acquired this skill before he comes to you as a student. Our surveys show that few have reached anything like perfection. School room results show that help is urgently needed. Isn't it likely then that we have two problems to face, viz.: (1) the basic preventive work, and (2) remedial efforts for those already in trouble? If it can be shown that *unification* and *focus-fixation* association are acquired skills, then it can be argued that they can be taught. Some of this teaching comes within your scope as educators, and some of the burden must rest on specially experienced optometrists."

In making this point Dr. Jaques widens the scope of Vision Education. He is not satisfied with the reporting of visual anomalies by "intelligent observers" using "standardized forms" as guides for their observations. He asks for a far more difficult but much more constructive program, viz.: prevention of dysfunction. He asks, "Is it common sense to go on as we have in the past allowing the child's visual capacities to break down, and then patch and repair? The problem of prevention is of the utmost importance. Remedial work we must do to help those who have already fallen beneath the load. Parents today know little more about the eye-sight of the children under their care than was known in the dark ages."

Dr. Jaques follows through on his idea concerning prevention by suggesting periodic and "spot" surveys of visual functioning on the parts of school children. He says, "The survey work must rest on the school teachers. I do not see it as a special designated work for one member of the school staff—to me it is a function of the room teacher. Why? Because she is in constant contact with her children and thus can note the correlation between visual efficiency and school room projects." He goes on to say, "To my mind it is entirely possible to equip this room teacher with the ability to make those surveys without heavy equipment, and without the expenditure of too much time. She should be able to group her pupils into three classes, viz.: (a) those with competent visual capacities, (b) those now competent but indicating future difficulties, and (c) those who already have a visual problem."

Specific suggestions for determining visual efficiency are made in this very excellent article by Dr. Jaques. He mentions the "push-up test" and "rotations," observations of eye-movements, evidences of difficulties as shown by "frowning, lid compression, head turning for better light or focus, 'tromboning' the card for better distance, and a general air of vexation and uncertainty."

Caution in considering visual deficiencies as being of primary importance in education was offered by Clinton A. Wilson, M.D.,⁹ also speaking before the 1937 annual reading conference at Claremont. He said, "There is, perhaps, too strong a tendency to regard slow and inefficient reading as due to some visual apparatus defect. This is natural enough, because seeing is first an obvious function concerned with reading. We have much to learn about it yet, but the trend of present incomplete evidence is that visual apparatus defects can cause poor reading, but that they are seldom acting alone. More attention is being paid, as it should be, to the less obvious and more difficult problems arising from the 20 to 30 other causes of poor reading. Consider and examine the visual apparatus, of course, and especially its interactions with the other abilities or power and systems of the individual."

Dr. Wilson mentions several physiological and psychological factors which may affect reading ability and then he concludes, "So it comes down to this finally, as many things do these days: 'What can the teacher do about it?'"—He answers this query as follows: "In fairness to your pupils and yourselves you can and should only identify approximately that something is wrong. Then seek help in determining what it is. Beware of diagnosis and treatment, however intriguing they may be. You are trained

for other work equally if not really more important from which it is unfair to take your attention until necessary."

Dr. Wilson simplifies very greatly the responsibility of the education profession for Vision Education. All educators are expected to do is "identify approximately that something is wrong and then seek help in determining what it is." I suspect you will agree that such a program is wholly unacceptable. There is no virtue in finding out what is wrong unless competent steps are taken to remediate it and to prevent its recurrence either with the patient at hand or with others. The very essence of education is diagnosis and treatment based thereon. However, we can concede the point that "visual apparatus defects . . . acting alone" seldom cause poor reading. We are concerned with the visual process, a psycho-physiological phenomenon. "Apparatus defects" are of minor concern in most cases. Good vision is a development. It is vastly more than an anatomical reaction.

In this regard H. L. Fuog, Opt.D.,[®] speaking before the 1938 annual reading conference at Claremont on the subject, "Visual Adaptations made by Students to Avoid Reading Difficulties: Their relation to teaching," called attention "to specific visual activities, the anomalous status of which can readily impede the response to learning generally, and reading performance specifically." He began by pointing out that "accurate perception cannot be preceded by faulty sensation." But the significance of the degree of faultiness depends upon the nature of the visual task. One reason why correlations between so-called "visual deficiencies" and so-called "reading disability" are not higher is that the seeing task in reading printed words, altho sometimes arduous, is none-the-less usually quite gross. Sharp sight is not demanded, and adaptations may make compensations which further reduce the relationship. However, Dr. Fuog pertinently pointed out that the compensations are not without cost in personal welfare and in behavior symptoms. He illustrated this point by describing behavior induced through the so-called "Interval of Sturm." He said, "These conditions are indicated in children of all grades, if (a) a habit of frowning is noticed, (b) a habit of squinting is noticed, one or both eyes, (c) a habit of holding reading material closer than usual, (d) one eye appears smaller than the other."

He went on to say, "The far-sighted child, 1D to 3D, secures his *clear* image by ciliary posture adjustment. By maintaining this tension, fatigue ensues, interest wanes, avoidal trends are set up, headaches occur, eyes smart, sting, burn, etc., he rubs his eyes, and they later appear red, irritated, etc. Indicative of this condition, therefore, is: (a) listless attitude toward reading, (b) recitation of headaches, (c) stinging, smarting, itching, etc., (d) appearance of reddened, irritated lids, (e) squinting of lids, frowning and depressed brows (a protective adaptation to low tolerance of light). Photophobia is commonly present."

He summarized the discussion of far-sightedness as follows: "The associated and subsequent effects produced in the visual mechanism by compensating for far-sightedness are many: (a) two-eyed ease of movement becomes more difficult, tension is produced, *head turning* is substituted for eye turning in reading, (b) two-eyed poise is interfered with, difficulties of fixating print and difficulty in maintaining such fixation occurs, (c) fusion or unification of the mental visual image becomes more difficult to maintain, (d) zone of recognition is reduced, more fixations per line now

required, (e) confusion of visual impression, (f) stereoscopic vision is reduced, (g) signs of visual and mental fatigue occur, (h) comprehension (through vision) is reduced, (i) giddiness, (j) signs of afternoon nerves and nervousness occur, (k) periodic occurrence of *double vision*, (l) habitually *closing one eye* when reading, (m) in extreme effects, one eye may actually deviate inward (convergent squint) or perhaps outward (divergent squint)." "It is most important to remember that far-sighted children are in the great majority (80%) and that they obtain through the compensating activities (with the above effects) *actual or near perfect vision*."

By and large children manifesting such symptoms as those mentioned by Dr. Fuog are the ones whom teachers have been referring for visual examination. The perfunctory handling of such referrals as was critically described by Dr. Lordan has retarded honest attempts at Vision Education. The casual examination for so-called "refractive errors and muscle balance" is obviously not sufficient. More attention must be given to the evidence of "abnormal effort" with specific visual tasks. Such evidence can be collected effectively only where the tasks are actually encountered, usually in the schools. Its collection calls for the development of "intelligent observers."

In 1939 T. A. Brombach, Opt.D.,[®] speaking to the Claremont annual reading conference, stated, "The most important cause of binocular dysfunction at the reading range is improper posture." Page 8. He identified three types of postural deficiencies, viz.: (a) reading at too close range with both eyes directed at the page, (b) head resting in palm of right hand, with elbow resting on table, and (c) head resting in palm of left hand with elbow on table.

He said, "The proper reading posture suggested by results obtained in clinical practice is as follows: the reading matter should be held at a point equal to the distance indicated by the right angle position of the arms, sitting erect, the book held in their hands, elbows on the table. This offers an individual reading posture permitting comfortable binocular function. The progressive stages of myopia can be arrested in many cases, and myopia may not manifest itself in many children if this proper postural position is applied at an early period."

Dr. Brombach also identified three conditions other than those of posture which he considered to be of considerable significance. They are: "Ocular dysfunction caused by anisometropia (a difference in the refractive systems of the two eyes)," "manifest or latent strabismus," and "improper or partly developed binocular control patterns often found after surgical correction of strabismus." These conditions he stated are frequently causal factors producing postural adaptations which are in turn detrimental to good seeing. The conditions also frequently lead to so-called "enlarged blindspots" which are really psychologically non-receptive areas surrounding the physiological blind-spot. He stated "If properly applied, satisfactory evidence of visual disturbances which retard the normal response to the standard methods of teaching the art of reading can be charted by the teacher in the classroom." His paper concluded with "suggestions for blindspot measurement for teachers."

Miss Bertha Dow,[®] kindergarten teacher in the Fontana Public Schools, reported before the 1943 annual reading conference at Claremont the

results of her experimenting with Dr. Brombach's technique for measuring the psychologically non-receptive areas. The first year she measured sixty-one pupils who were reported as doing poorly in reading printed words. Fifty-five of them evidenced "enlarged blindspots." The second year she measured seventy-nine pupils with sixty-six evidencing "enlarged blindspots." Dr. Brombach read the records taken by Miss Dow and suggested remedial treatments which she applied. She reports that of her first year group forty-seven pupils, or seventy-seven per cent of the group, "resulted in complete recovery after the occlusion of one eye and postural correction." The results with the second year group were less productive. Forty-three of the sixty-six pupils, or sixty-five per cent, were remediated. However, an epidemic of measles interfered with the treatments of some nineteen others who belonged to the group. Miss Dow stated, "The unbelievable part is the way these children improved in reading and other subjects as their enlarged blindspot areas returned to a normal size."

This work was done by Miss Dow purely as a service to the children. She performed a full assignment as a kindergarten teacher each day before she was available to serve the pupils in the other grades who so evidently needed her services. It is indicative of even greater aid which may be extended when such services are fully recognized by the school authorities and proper provision is made for their being carried out. Vision Education even as a "boot-leg" service is productive.

B. W. Kelly, Ph.D.,[©] Bureau of Research of the Keystone View Company, and sometime Associate Director of Research in Orthoptics for the New York Eye and Ear Infirmary, discussed before a session of the 1939 reading conference, "Training Pupils to See." In his discussion Dr. Kelly traced the development of individual seeing and indicated many critical periods and affecting conditions pertaining to such development. He stated, "The premature forcing of the child to use the eyes before they are ready, by the mother who is so sure that her child is superior to other children of the same age, is much worse than neglecting for a time optical defects which can be corrected by glasses, for the reason that the child may never recover from the premature forcing." He concluded his discussion with these significant statements, "It is certainly due to every child on entering school or who is already in school, that there be some adequate means at hand by which it can be determined whether his eyes are functioning properly in terms of the normal or expected development for his particular age. If dysfunction is discovered it is also due to him that some competent person should take the child in effect back to the cradle, if necessary, and by controlled means and with appropriate stimuli re-educate the eyes to a new and appropriate standard of efficiency. . . . "I express it only as a personal opinion that in the near future, techniques will be so standardized and simplified that it will be possible to make them available for all children as routine classroom procedure and not as remedial exercises for the few. We are not ready for that now. But if we take the view that it is an educational process, then its administration must follow the laws of learning eye conditioning. Certainly no one is better qualified for the task than the well-trained teacher."

The fifth yearbook of the annual reading conference at Claremont contains a report of a visual survey conducted in the Alhambra, California,

schools. The survey was directed by Maurice M. Dalton, Opt.D., in collaboration with M. R. Stokesbary, M.S., [®] Assistant Superintendent and Director of Research for the city schools. A portion of the cost was met by a grant-in-aid from the Works Progress Administration. Survey technicians were selected from W. P. A. personnel listings and were trained under the supervision of Mr. Stokesbary and a representative of the Keystone View Company. The Bett's battery for use with the Telebinocular was used in the survey. Dr. H. L. Fuog assisted with the analysis of the results of the measurements. Some 5821 pupils in grades 3 through 12 were examined at a reported cost of only 43 cents per pupil.

This survey disclosed that approximately 18 per cent of the elementary school pupils and 12 per cent of the secondary school pupils gave acceptable reactions to all of the tests of the battery. That means that about 82 per cent of the elementary and 88 per cent of the secondary pupils deviated from an acceptable response with one or more of the tests. The educational significance of the deviations was apparently slight. Low correlations were reported between visual conditions and various educational and intelligence measurements. The visual significance of the deviations was not discussed.

There was reported a cumulative increase in unacceptable reactions to several tests as the population progressed through the grades. An instance in point is stereopsis. The report states, "While our report includes the 3rd to 12th grades only, the survey indicates that 85 to 90 per cent of the kindergarten and first grade pupils have zero stereopsis but that this faculty develops very rapidly after that age period." Page 68-69. The reported test data indicate that the elementary population showed approximately 85 out of 100 pupils have 100 per cent stereopsis and that about 90 out of 100 show at least 80 per cent stereopsis. The case for secondary school boys was not so good. About 74 of 100 showed 100 per cent stereopsis and about 81 of 100 had at least 80 per cent. Secondary school girls made somewhat poorer showing. About 66 of 100 had 100 per cent stereopsis and only 77 had at least 80 per cent.

The report states, "A plausible explanation of the above could be that the advance of the pupil through the grades imposes an increasing visual load. (This expression was later modified to read "mental load" since that seems more nearly to express the real condition.) If there is an imbalance in the ocular musculature the zone of comfort may soon be exceeded and suppression of one eye with loss of stereopsis results. Again an increased amount of reading with its attendant increased concentration tends to bring errors of motility to the level of consciousness to be eliminated by mental suppression."

The inference is obvious. The tasks demanded of young people in modern school practices may and commonly do constitute hazards to the development and maintenance of comfortable and efficient seeing. If this is truly the case, it seems equally obvious that corrective measures should be applied at once. This is the basic theme of Vision Education. The question seems to be, how can this best be accomplished?

Speaking before the 1940 Claremont reading conference Henry B. Peters, Opt.D., [®] spoke pertinently to this question when he discussed "Visual Efficiency in Relationship to Reading Ability." The substance of his presentation was in the nature of a report of a research study which he

conducted at the University of Nebraska under the direction of George Parkins, Opt.D., and Professor Worcester of the university's department of psychology. Dr. Peters used an orthoptic training procedure to determine, "1. The relation between orthoptic training and changes in reading ability.—(and) 2. The relation between orthoptic training and changes in visual functions."

Because of their pertinency to the present discussion, I shall quote the conclusions expressed in Dr. Peters' report. They are: "*The conclusions in Relation to Reading Ability.* From a careful consideration of the changes in reading ability manifested by the groups investigated and the typical cases examined, the following appear significant: 1. Orthoptic training, not supplemented by formal pedagogical training in reading, is accompanied by gains in both rate and comprehension in reading as measured by the test instruments employed in this study. The gains made by the orthoptically-trained group appear to be approximately equal to or greater than those accompanying pedagogical training alone. There is evidence to indicate that both types of training result in significant improvement. 2. Gains in reading ability accompanying orthoptic training are found not only with selected poor readers but also with a random selection of subjects. In the latter case, the gains are more noticeable. 3. The order of training, where both pedagogical and orthoptic procedures are used during a training program, is apparently of little consequence. 4. There appears to be a trend indicating that the Binocular Synchronizer is more efficient in affecting the reading ability of subjects studied than the Squint Korrektor, though statistical significance cannot be attached to this conclusion. 5. Orthoptic training seems to be accompanied by greater changes in reading ability with those students whose scholastic aptitude is superior to their initial reading ability as measured in this experiment and who manifest certain functional limitations in their visual mechanisms. 6. Orthoptic training seems to be accompanied by the least change in reading ability with those whose scholastic ability is lower than their reading ability and who manifest only slight visual limitations. 7. Subjects of high scholastic aptitude appear to make greater improvement in reading ability than subjects of low scholastic aptitude. 8. Motivation appears to be a significant factor in reading changes accompanying orthoptic training. 9. Visual deficiencies of the nature considered in this investigation appear to act as limiting factors in the development of reading ability in a significant number of cases. Large individual differences in the extent to which any visual limitation may act as a reading limitation are manifest."

Dr. Peters continues in the report to present "*The Conclusions in Relation to Visual Functions.*"—"1. Orthoptic training is accompanied by significant visual changes that tend toward the criteria of normality set-up. 2. The changes show a consistent trend toward the broadening of visual functions and reducing of visual limitations manifested at the start of the experiment. 3. The dispersion within the group was significantly reduced on nearly all visual measures, indicating that the group became more homogeneous. 4. There is relatively no change in the visual functions accompanying pedagogical training alone. 5. Certain functions show the influence of specific instrument training. The positive and negative fusional reserves, fixations, and the zone of recognition appears to be influenced

more by the Binocular Synchronizer than by the Squint Korrektor. There also appears to be a slight trend to indicate that suppressions are more quickly and completely reduced by stereoscopic training, but this trend is rather obscure. 6. Subjects of high scholastic aptitude appear to make more progress in the reduction of visual limitations by orthoptic training than do those subjects of low scholastic aptitude. 7. Motivation appears to be a significant factor in the successful elimination of limitations and broadening of visual functions by the orthoptic method."

The general findings as reported by Dr. Peters are substantiated by the findings reported by Sarah V. Apperson, Ph.D.,^① Dr. Apperson also conducted her research at the University of Nebraska. It is reported in the ninth yearbook of the Claremont reading conference.

Further corroboration can be found from a somewhat similar study conducted in the Lincoln School in Pomona, California, by Burton Clark, Opt.D., and reported in Bulletins 25 and 26 of the American Research Council of Optometry. Dr. Clark's study was made at the elementary school level. The others were made with college freshmen. The fact that each of these conducted entirely independently of each other resulted in substantial improvement with reading when the approach was merely one of orthoptic training seems rather convincing that efficient vision is needed for efficient visual reading. But we must still determine what constitutes efficient seeing, how it can be achieved, and under what jurisdiction this learning shall occur.

An attempt at an answer to some of these questions was made by the Ophthalmological Section of the Los Angeles County Medical Association in 1940. It was reported before the 1940 session of the Claremont reading conference by Alfred R. Robbins, M.D.,^② under the title, "An Ocular Policy for Public Schools." Regarding the subject of so-called "muscle training" the report states, "According to Lancaster and Howe these muscles (the extraocular muscles) are individually able to pull sufficiently strongly to lift a thousand gram weight. The eyeball weighs approximately seven grams. When the eyeball moves, the muscles normally do not pull against each other, for the antagonist is relaxed by reciprocal innervation. Consequently, even assuming faulty reciprocal innervation, the reserve strength of an eye muscle is 50 to 100 times that used in ordinary movements. This reserve presumably makes it possible for fewer fibers to act at one time, allowing the remainder to be at rest, an arrangement which diminishes fatigue to a minimum. Assuming that these muscles have the characteristics of other tone muscles, and the evidence for this assumption is better than that they are like peripheral muscles, their metabolism is low, and the blood circulation sufficient to prevent accumulation of metabolites even with extreme use, so that there is nothing like the fatigue which occurs in a skeletal muscle. Likewise, the ciliary muscle resembles a tone muscle.

These facts indicate that ocular fatigue is not related to a peripheral mechanism but rather to a central one dependent on effort, attention, and concentration. Also, that any series of exercises or orthoptic training that undertakes to alter the position of eyes or the strength and function of the extraocular muscles, if beneficial, probably succeeds not by virtue of effects on the extraocular muscles, but rather by effects on the central mechanism

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of vision, such as fusion and stereopsis, which are primarily brain and not muscle functions." 138.

I suspect that no one will wish to quarrel with the main points of this statement. It makes no fundamental difference whether the change occurs for one reason or another. The important thing is whether changes can be brought about which are conducive to better visual behavior. The evidence seems to indicate that they can. Dr. Robbins' statement concedes that they may be "beneficial." It is worthwhile in passing to note that Vision Education should not be concerned with "muscle training." Vision Education is directed toward equipping the individuals better to use their muscles for the production of comfortable, efficient seeing.

Under the caption, "*Proposed Methods of Examination*," Dr. Robbins makes several points for which there may be considerable lack of agreement. For example, he states, "Obviously, the most important single test is of visual acuity." 138. Contrary to that idea, Dr. Fuog in 1936 wrote, "The writer sincerely believes that it is vital to differentiate between the meaning of *visual acuity* and seeing, if the adequacy of seeing resources or fitness is to be determined for any pupil or adult." (First Yearbook—Reading Conference.) Dr. Robbins states, "In most instances of mass testing when distant vision is normal, the school must assume normal close vision." 138. And, "Lack of stereopsis certainly is not a handicap as far as reading is concerned." 139. He goes on to state, "As a matter of fact monocular reading produces less stress and may take less effort than binocular reading because with one eye in use at a time there is no effort expended in maintaining muscle balance in fusion." 139.

One could go on indefinitely quoting and citing statements and data bearing on the question of "visual training" or as I prefer to say, "Vision Education." That goes to show that many are aware of this problem and have given it consideration. However, four specific questions have been presented for me to discuss. The first of these is "What visual skills are of prime importance to the student assuming that there are degrees of importance?" I find no difficulty in accepting the assumption that there are "degrees of importance."

I suspect that we shall find that various so-called "visual skills" are needed for different seeing tasks. For example binocular coordination as required for the use of a microscope is different from the binocular coordination involved in reading a line of printed words. The saccadic movement which is characteristic of the act of reading printed words can hardly suffice for the process of reading pictures. However, we do not wish to avoid the issue which the questioner so evidently has in mind. Let us then be specific without in the least attempting to be inclusive. Smooth and facile rotations are one of the basic skills. Control over the accommodative functions which will readily produce clear imaging at the distant and the near seeing ranges of the individual seer is a second basic skill. Facile mastery of the operations involved in binocular coordinative activity is possibly not a skill but a galaxy of skills, but it or they should be included. The ability to focus attention upon the important aspects of a visual stimulus, should be included. Postural helps, both ocular and as regards the larger body functions are certainly needed.

The second question is, "What norms have been or should be estab-

lished?" I am afraid that either my information is poor or we shall have to admit that there are no norms worth mentioning for many of the visual "skills." In normative procedures we have been too much concerned with particular tasks and too little concerned to discover whether the "skills" involved had only special application or whether they were general. The norms for so-called "visual acuity" may be a case in point. As Dr. Fuog pointed out, most school tasks require only gross visual discrimination. 20/30 ability may not be necessary. In fact myopes seem to show that such acuity may even be a handicap for certain tasks. I believe we need studies for the purpose of investigating many types of visual needs and for setting up standards of competency with regard for them.

The third question is, "What measures have been or should be taken, (a) to screen out those in need of assistance and (b) to provide the required training?" The articles which have been published concerning vision problems in the schools would make a very considerable collection. While many of them are worthless for certain purposes, they still were needed to present the problems and to bring them into conscious awareness. Several batteries of tests have been developed for use in the schools. Their application is increasing each year. That helps to identify the needy cases. Very few schools, to my knowledge, have attempted a serious program of what might be called "visual training." However, we must not overlook the probability that whatever the school does which involves visual behavior is very likely to be a "visual training program."

The fourth question bears on this so I shall pass on to it. "Should visual training become a part of the routine educational process and if so can it be entrusted to the educator or does it demand the services of an optometrist or eye-physician?" I believe that Vision Education is and must be a regular part of the school's responsibility. This is shared, however, with a number of other professions, among which are optometry and medicine, including the ocular phases of that field. However, the trend in the treatment of vision is definitely away from the mere physical and toward the psychological. Consequently, the field belongs more to education now than formerly, and it will become more and more of an educational responsibility as time goes on. If one must learn to see efficiently, the process is definitely one for education. Educational optics is as important to consider as is the physics or physiology of optics. It is in reality a phase of the psychology of optics.

Obviously, there are aspects to "visual training" which are not adapted to school servicing. But there is no doubt but that if and when school people awaken to the need for this service a great deal more will be accomplished than at present. Let us proceed with cooperation to develop the service in the best possible manner.

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VISUAL MATURITY AT THE FIRST GRADE LEVEL

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In the literature concerning the maturity of small children a great deal has been said about visual immaturity. For the most part the statements have been mere expressions of opinions without substantiating data to prove their validity. These opinions have come largely from medical and optometric practitioners. Educators have been told in no uncertain terms that harm is being done to children by demanding too close and too detailed visual tasks at too early an age. The general opinion seems to be that reading printed symbols in books is too difficult for the eye until the child has reached the seventh or eighth year level. Educators have based reading-readiness too exclusively, perhaps, on a mental age of seventy-two months and have given too little regard to specialized types of immaturity such as visual, auditory, muscular and others.

The reasons for the lack of substantiating data regarding visual maturity is obvious. Doctors do not contact children, as a rule, until the visual pattern has broken down, or at least until it is beginning to give the child trouble. Valid tests of vision designed for little children are not in general use. Schools, generally, depend upon the Snellen test of vision which when taken alone is a very unreliable measure at any level of school attainment, and it is especially unreliable at the level under the discussion at this time.

Nature designed our eyes for distant seeing. In a comparatively short span of time man has changed his major seeing tasks from distance to near, causing unnatural demands to be made upon the eyes, not only in school life, but in all phases of living. Visual consciousness or awareness is a matter of development, which is far from complete when a child enters school. Unawareness or immaturity shows up in visual test results as reduced acuity, either constant or in the form of suppression of vision in one eye or both eyes, lack of muscular coordination, lack of ability to fuse or unify the images of the two eyes, and the presence of psychologically non-receptive areas around the physical blind spots in the eyes.

Research and practice concerned with the fields of vision in the areas of the retina around the macula, or field of central vision, have been carried on almost exclusively with adults. The test results with such cases, if indicating abnormal conditions, are usually considered to be indices of pathological conditions resulting from injury or disease. Exceptions to this general practice is the extensive work with peripheral areas carried on by Dr. Thomas Brombach,* of San Francisco. He has studied the so-called "enlarged blind-spot" as manifested by poor readers up to and including the ages of fifteen or sixteen years. He discovered that children who are having difficulty with reading practically always have large non-receptive areas in their visual fields. He attributes this condition to an inability to coordinate the two eyes for comfortable seeing. The writer has observed the same con-

*Brombach, T. A. "The Psychological Blind Spots in Reading Problem Cases." *Fourth Annual Reading Conference Yearbook*. Claremont College, 1939 Pp. 8.

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dition in the visual fields of poor readers who have been in her care. However, from subsequent work in the prevention of retardation in the primary grades she has found that large non-receptive areas are the *rule* rather than the *exception* in grades one, two and three. Might it not be possible that these poor readers have never been able to enjoy normal visual maturation for their increasing age because they have never learned to coordinate the muscular activities of their eyes? If such is the case their remediation or prevention is really a problem of education. If at this level a child has a well coordinated pair of eyes, which he can use with no strain, that seems to be the exception and not the rule. From observations made in the survey to be described, good coordination and visual comfort appear to be more or less accidental in occurrence. It is probable that much the same condition exists in younger children. At the eight-year-level there seems to be a general trend toward the reduction of these non-receptive areas, altho some children still evidence them at the eleven- and twelve-year-levels, the highest levels tested in this study. The existence of these areas in the visual fields of children at these ages is not so much a matter of immaturity of the eye or the eye-muscles as it is an indication of binocular dysfunction. Dr. Brombach maintains that improper posture at the reading range is the most important contributing cause of such dysfunction. In support of this theory it was found that in the original tests given in the sixth grade of a certain school, before any consistent attention had been given to the matter of posture, fifty per cent of the children gave evidence of poorly functioning binocular vision. A year later tests given to another sixth grade but taught by the same teacher, who had during that year given a great deal of attention to the matter of posture, showed that only two children out of the thirty-six in the class who gave evidence of poor binocular visual functions. There were, however, some other reasons for this difference. Several children in the second group had been given special ocular attention, such as refractions and eye covering along with the attention to posture at home as well as at school.

If there is no pathology operating, these large non-receptive areas can be reduced and better coordination developed by the simple expedient of covering alternate eyes for short periods each day. The length of time required to reduce the "enlargement" to "normal" varies with the mind-set of the child (and incidentally, of the parent), with the child's interest in the activities carried on during the covering period, and with the degree of complexity of the visual disturbance. If, after two weeks has elapsed, no improvement is apparent, the child should be referred to a vision specialist for care. At the primary level charting the fields for enlarged "blind-spots" is an excellent screening device for discovering probable immaturity in seeing and potential inability with learning to read printed words.

Because of the law passed in California in 1945 permitting children five and one-half years of age to enter first grade, an effort was made in a certain elementary school, to discover the visual status of children of that age. As the testing progressed there seemed to be very little evidence of "normal" visual patterns in children of any age in the first grade. The group measured involved about one hundred children in the B1 and A1 divisions. The age range was from 5.6 to 7.3 years. Eighty-five children accomplished both the original test and a comparable re-test. Three children were found to

be "normal" in all respects as regards their sight. This is probably above the common findings for this level. Twelve children either were too immature in other ways to test, or were not in attendance at that school at the first of the term.

The Keystone Telebinocular was used to measure acuity (visual efficiency), vertical balance, lateral balance at the far and near points, and fusion at far and near. The Brombach Scotomograph was used to measure the non-receptive areas around the physical blind spots.

Method of Testing Non-Receptive Areas Without the Scotomograph

Equipment

A flat surface (small table or desk). A sheet of white paper, approximately 9x12" with a 5 mm. cross drawn in the center of the sheet.

A strip of white cardboard cut $\frac{1}{4}$ " in width and 12 or 14" long. A 5 mm. circular spot must be drawn near one end preferably with India ink.

A 2x5" white card.

Pencil.

The normal blind spot taken at approximately 12" will fall in an elliptically shaped area whose center is 3 and $\frac{3}{8}$ inches from the center of the paper, and whose vertical meridian lies $\frac{3}{8}$ " above a line drawn thru the center of the paper horizontally, and 1" below this line. The horizontal meridian of the area is $1\frac{1}{4}$ ". Peoples' blind spots vary in position somewhat, but the above is sufficient for comparison purposes.

The first series of tests were given in September, 1945. Follow-up tests were given at intervals during the term. The tests on which the final comparisons were made were administered in February, 1946.

Of the one hundred children tested ninety-seven had large non-receptive areas. Fifty-eight showed reduced acuity in some degree, when measured either with the telebinocular or the Snellen Chart. Of this fifty-eight, if

Method

Seat the child in front of the desk with the sheet of paper placed in such a position that the X will fall directly in front of one of his eyes. Ask him to cover the other eye with the card.* Place the end of the strip with the circular spot near the X. Get the child to realize that he can see the spot when he is looking at the X. Now ask him to keep looking at the X and draw the spot out until he can no longer see it. Mark this spot with the pencil. Starting at this dot push the spot in toward the X until the child reports that he *can* see it. Be sure the child continues looking at the X. Do this in many directions. Mark several places at which he sees the spot and draw a connecting line thru these marks. There will not always be an area with a circumference.

Repeat for the other eye, moving the paper so that the X is in front of the other eye.

*The child's eye must be approximately 12" from the paper as the norm is set for this distance.

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the directions of the Keystone Company concerning referrals for refractions had been followed, forty-five children would have been referred. But, from the fact every child in this group, excepting the three mentioned, had these deviations from "normal," it can probably be assumed that such conditions are merely evidence of a maturing visual pattern. At this age it is more likely that they are indications of a lack of *consciousness of seeing power*, and not necessarily evidence of *visual discomfort or defect*.

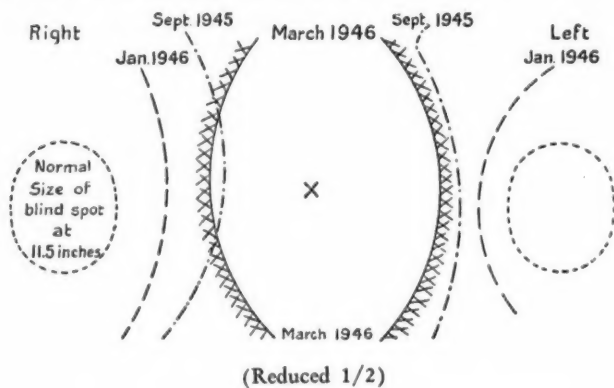
From the results of the experiences of Dr. Brombach; Mrs. Bertha Dow Sales, a teacher in the Fontana, California, City Schools; and of the writer and, from assurances from a number of doctors that covering alternate eyes could in no way injure a child, the decision was reached to start a covering program with this group to see if the results would be as salutary as they had been with older children. Those who were under any doctor's care were not included unless the parent wished. Mothers of the children were invited to a conference where the matter of visual immaturity was discussed and their cooperation in a program of treatment was requested. The procedure for treatment involved covering the child's eyes with a patch for two half-hour periods during the day: one eye in the morning and the other eye in the afternoon, for two weeks, or more if necessary. Fifty-two mothers agreed to cooperate. Of the fifty-two, forty-one actually carried out the recommendation. Improvement of the child's vision resulted in every case. In the case of only nine children was discontinuance of the covering recommended at the end of the two weeks period. The remaining thirty-two were asked to continue the treatment. The average time for covering was four weeks, but a few kept on for six or even eight weeks. During the term some other mothers decided to have their children try the covering. Thirty-six children whom we believed should have had it did not receive the treatment. They can be considered a control group in this experiment.

Specimen charts of the fields of two children are included here to illustrate the findings. In each case three measurements are reported. Note that the restrictions increased for the child who did not use the "cover" treatment whereas the child who used the "cover" treatment reduced the restriction nearly to the normal blind-spot size.

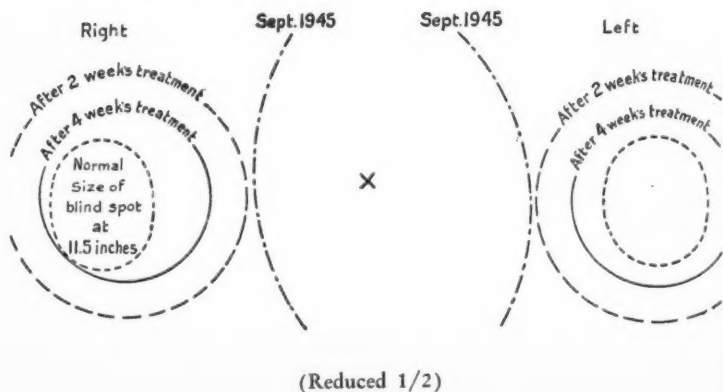
The covering treatment appears to help the child to realize his visual power and to set up a balance between his two eyes providing there is no serious structural impediment, or some very serious functional difficulty. Many children whose non-receptive areas reduced to nearly normal, but who still had some lateral imbalance as measured by the telebinocular, kept on improving after the covering period until their visual measurements fell within the range of tolerance. The children who did not test normal at the end of the period of covering included those afflicted with strabismus (cross-eyed), one congenital myope, one post-polio case, and a few whose mothers admitted that the covering had not been done faithfully.

Another interesting and suggestive phase was that upon testing children who had had influenza during the Christmas holidays it was found that their visual patterns were very much disorganized, even if they had worn the patch with success before. The disorganization resolved itself to normal however within a month or six weeks without further cover treatment.

Specimen of field charts of student who did not use "cover" treatment



Specimen of field charts of student who used "cover" treatment



The following is a percentage comparison of the two groups: those who covered and those who, we believe, should have covered, and did not.

		Covering	Non-covering
Median I. Q.		107	110
I. Q. Range		86-129	84-147
Reduced Acuity	Sept. 1945	85%	55%
	Feb. 1946	18%	45%
Lateral Imbalance	Sept. 1945	34%	33%
	Feb. 1946	7%	40%
Faulty Fusion	Sept. 1945	27%	30%
	Feb. 1946	2%	30%
Large Non-Receptive Areas	Sept. 1945	100%	100%
	Feb. 1946	7%	100%

(Vertical imbalance was not present enough to justify inclusion within this comparison)

The B1 class which entered in February 1946 was slightly younger than the class which entered in the fall, but the visual conditions of the two classes were much the same.

Median I. Q.	106
I. Q. Range	81-134
Age Range	5.6-5.11
Reduced Acuity	73%
Lateral Imbalance	56%
Faulty Fusion	18%
Large Non-Receptive Areas	97%

One child in this group of thirty-seven presents a "normal" pattern. She is very mature in all ways and has an I. Q. of 124.

One of the observations which impressed the writer as she carried out this study was that the children gained markedly in assurance and confidence during the period of treatment. After the covering was stopped there was no doubt in their minds of what they were seeing. The non-covering group were still rather vague and uncertain in their responses to the tests. Older children under cover treatment often report improvement in their vision, both as to clearness and breadth.

Conclusions:

1. A large number of children at the first grade level have low visual efficiency (acuity).
2. From a third to a half of the children at the first grade level evidence a lateral imbalance. The eyes have a tendency to turn inward (esophoria) or to turn outward (exophoria). There is a small number of children with vertical imbalance.
3. Practically every child at the first grade level has large non-receptive areas around the physical blind spot. In most cases these probably indicate

at this age visual dysfunction due to unawareness of visual power, rather than being caused by structural or functional abnormalities.

4. One method of arousing consciousness for seeing and organizing the visual pattern at this level is to cover alternate eyes daily for two one-half hour periods over a length of time ranging from two to six weeks.

5. This covering technique is a good screening device to discover visual difficulties which need the help of a specialist in the field.

6. If we are going to ask children to perform tasks difficult for even a well developed and stabilized sight process we should provide facilities for discovering children who suffer from immaturity in that regard. We should make provision for helping the children to learn to see efficiently and to use their eyes coordinately as a functioning unit.

7. Special attention should be given to the children returning to school after a fever illness.

8. Teachers, administrators, boards of education, and the public in general should be acquainted with the idea that vision education, or vision training, is one of the fundamentals, and should be incorporated in the curriculum of every school.

Division IV

Tactile Or Touch Reading

Very often a blind child "scans the page" with his left hand while he is reading aloud—with his right he measures the length of the paragraph, etc. We have found that the most intelligent readers thus speed up their oral reading, by reading in advance and being familiar with the thought ahead. This is done unconsciously—if asked to do it deliberately most children say they would be confused if they read two lines at the same time.

Frances Blend

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TACTILE OR TOUCH READING

INTRODUCTION

All people make considerable use of touch reading. However, as a process it has received little educational attention with the possible exception of its use by the blind.

Miss Blend's discussion of "The Blind Child and His Reading" points out that whatever the stimulus source for reading, "the final results are practically the same, the mechanics only differ." She pertinently calls attention to the fact that the so-called sense of touch is really a composite of several senses. The emphasis on relaxation as an influence in effective touch reading has its counterpart in visual reading. The problems of learning to coordinate the fingers in tactile "seeing" suggests similar problems with two-eyed reading. Reading procedures are very much alike, differing in degree rather than kind. This indicates that the psychology of reading is basically a perceptual study rather than a matter of particular types of reception.

Mr. Laswell's description of how he has devised "Comics for the Blind" presents a unique type of material for touch reading. The use of comics for visual reading has become so much in evidence among those who see that we are likely to assume that everyone reads the comics. But only an understanding genius would think of making comics available for touch reading.

THE BLIND CHILD AND HIS READING

*Frances Blend, Principal
School for the Blind and Sight Saving
Los Angeles, California*

The blind child and his reading is the problem we are to discuss today. His difficulties and accomplishments may throw some light upon the problems which confront the seeing child learning to read. I feel honored to even attempt such a discussion, since our methods and procedures are still being discarded, amended and created. We are in the experimental stage ourselves. The only premise about which we are sure is that while blindness is a physical handicap—it need not be either a mental or a spiritual one.

From this Braille alphabet you will see that the system is based on the combinations which can be derived from six dots arranged in two vertical rows of three dots each. Sixty-three simple combinations are commonly used to form the alphabet, punctuation marks, numbers, and musical notations. Full spelling of words is soon superceded by a quicker mode of reading—i. e. the use of contractions where single letters or other combination of dots

LITERARY NOTATION

ALPHABET	a	b	c	d	e	f	g	h	i	j
NUMERALS	1	2	3	4	5	6	7	8	9	0
WHOLE-WORD	a	but	can	do	every	from	go	have		just
Line 1	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
ALPHABET	k	l	m	n	o	p	q	r	s	t
WHOLE-WORD	knowledge	like	more	not		people	quite	rather	so	that
Line 2	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
ALPHABET	u	v	x	y	z	ç	é	à	ê	ð
WHOLE-WORD	us	very	it	you	as	and	for	of	the	with
PART-WORD						and	for	of	the	with
Line 3	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
w, etc.	à	ê	l	ô	û	é	ï	ü	ø æ	w
WHOLE-WORD			shall	this	which			out		will
PART-WORD			gh	sh	th	wh	ed	er	ou	ow
Line 4	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
WHOLE-WORD					en				in	
PART-WORD									in	
PUNCTUATION	,	;	:	*		!	()	"	"
Line 5	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
PART-WORD	fraction line		ing		numeral sign		ar			
HYPHEN, ETC.	l	ò				æ				—
Line 6	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
accent										
numerical										
index										
Line 7	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
literal										
index										
recurring										
decimal										
see										
Rule 10										
italic sign										
decimal point										
letter sign										
capital sign										
Line 7	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
COMPOUND										
SIGNS	—	—	•	•	•	•	{	}		
	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠

(Reduced 1/6)

stand for whole words or parts of words. For example, the letter "b" with a space on each side stands for the word "but," "c" for "can," "d" for "do," etc. Combinations of dots, not necessarily letters, also stand for most commonly used words or parts of words. These "short cuts" are called contractions. For advanced readers there are more highly contracted books, known as Grade Two and Grade Three. Contractions do much for blind readers by enabling them to grasp larger units as wholes. A uniform system of embossing as to height, shape, size, and spacing of dots has been adopted by the various embossing plants throughout the world.

We are coming to realize very definitely that blind children may be more normal than we have suspected—that psychologically they "see" as truly as sighted children—that through training and "compensation of the

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remaining senses," the four avenues of approach to the mind may be trained to do largely the work of five. Impressions which are conveyed to the brain through the eyes are registered more quickly than those through the sense of touch. We must therefore recognize the fact that where a seeing child may be using 100 per cent effort or less in learning to read, to attain the same results the blind child must exert about 125 per cent of effort. However, the blind child can be made to realize that this additional effort may be considered in the light of an investment—the greater the investment, the greater the return.

Another factor which must always be considered is that there is a wide natural diversity of endowment among all children, whether or not they have sight. Among blind children we have the superior and the sub-normal, and between these extremes the great majority whose interests and abilities are similar to those of the average seeing child. While any good standard reading method may be adapted to the needs of teaching blind children to read, there are some fundamental differences between blind and seeing children. To eliminate or provide for these differences the successful teacher must understand the background and difficulties that are common to all blind children.

No doubt you are familiar with the reading program suggested by: The 24th Year Book of the National Society for the Study of Education.¹ In a general way we follow the suggestions of the five period plan:

1. Period of Preparation for Reading.
2. Initial period of reading instruction.
3. Period of rapid progress in fundamental attitudes, habits and skills.
4. The period of wide reading to extend and enrich experiences and to cultivate important reading attitudes, habits and tastes.
5. The period of refinement of specific reading attitudes, habits and tastes.

We shall discuss the first three periods only, as the refinement process is much the same with all children.

Period of Preparation for Reading

Educators now agree that before a child is taught to read he should manifest a reading readiness. This is equally true of blind children whose experiences are almost unbelievably limited. When we realize that their world is confined largely to the length of their arms, we understand why the height of trees, the shapes of roofs, the habits of birds and animals, colors, perspective, and hundreds of things revealed to the average child through the eye, are unknown to a child deprived of vision. Most blind children who enter school have either been so pampered as to deprive them of opportunities for normal exercise which develops initiative, or have been so neglected that they have no incentive for natural activity. Mistaken kindness or flagrant neglect have robbed these children of normal development—physical as well as mental. Too many parents tend to keep blind

¹National Society for the Study of Education. 24th Book—pp. 24-ff.

children in the infantile stage. Perhaps it is an attitude of trying to compensate for the affliction, which leads them to rob blind children of the right to develop through their own initiative. A poor little rich girl, aged eleven, entered our school this semester. She had never handled a piece of money, walked up or down stairs alone, or dressed herself. The result is a lack of energy, rigidity of body and unfamiliarity with many ordinary things of life such as the personal care of her body, moving freely without fear, etc. Whatever the motive, the result is a tragedy: an inertia that is almost impossible to break. Then too, hazy concepts must be clarified and new ones built up. This process must continue through life, but is most essential in order that words may have meaning. The more that is done to enrich the personal background of a blind child early, the greater will be his chance of enriching his life through his reading later.

This paucity of experience produces another barrier to a reading readiness: a phlegmatic inert attitude toward life in general. Ordinary stimulations that produce a verve and zest for living are lacking for the blind child unless the thoughtful mother or teacher supplies some substitute. He must be aroused from inertia and day dreaming to an interest in constructive activity. This may appear to be a simple thing to do, but when we remember that the major part of a blind child's attitude is built on timidity and a most barren background, we can realize why the task of stimulating activity and creating incentives is most difficult. The "inner urge" or desire from within is essential. When the child himself is eager to read, the battle is half won.

Confidence in himself and his environment plays a major role in the foundation for reading readiness. A blind child should feel absolutely relaxed with his teacher. As his friend and helper, she should create an atmosphere of security in which he may respond with his best self. An informal friendly attitude throughout the room is most conducive to stimulation, poise, and growth. The blind child should thus approach reading, not as a strange process, but as a natural procedure.

Slovenly speech and motor clumsiness are frequent problems with which the teacher is confronted, and before much continuous reading can be done, must be overcome. Reciting short poems often helps children to grow accustomed to hearing their own voices. Simple choral verse helps to develop poise and good enunciation. Games and folk dancing play a definite role in developing motor coordination. Since the muscles of the fingers, hands, arms, neck, back, and abdomen are brought into play in Braille reading, relaxation and coordination must be secured in order to prevent tension. This tension soon produces fatigue which in turn causes the attention to wander, and robs the blind child of the joy of reading. Tension is probably responsible too, for many mannerisms and tics; it limits the power of concentration and results in nervous exhaustion. Removing fears and developing confidence through free movement and free play helps to relieve and prevent this tension. The successful teacher therefore provides for multiple opportunities for self expression through dramatization, supervised out-of-door play, eurythmics, speech training, corrective gymnastics, folk dances, sense training, free play and games.

In this pre-reading period, the blind child must have ideas to express before learning to read. Dramatization plays a large part in helping him to

develop meaningful experiences. Playing "mother," impersonating animals and birds, reproducing fables and stories, stimulate expression of inner experiences. The introduction to formal reading is thus made less abrupt.

To enrich this—the pre-reading period—we emphasize the following activities:

1. Story telling by the pupils.
2. Story telling by the teacher.
3. Dramatization.
4. Instructional games.
5. Discussion of the experiences of the day.
6. Sight-seeing trips about the room, building, and yard.
7. Much handling of concrete material.
8. Directed activities.
9. Recognition of frequently used words, phrases, and short sentences.

Initial Period of Reading Instruction

The problems which meet the primary teachers of blind children beginning to read, are much the same as are faced by all teachers. Each must help the child to develop or build up associations between the concept and the symbol. One type of symbol is composed of dots—the other, of letters; one is conveyed to the mind through the sense of touch, the other through the sense of sight. While with the seeing child the sense of sight covers a larger field, in both cases a new set of sensations and perceptions must be interpreted and learned. The final result is practically the same—the mechanics only, differ. The natural endowment of children vary widely. Among blind children some have a poor auditory sense, many have poor motor control; the sense of touch is much more delicate in some. But unless there be a definite physiological defect, the sense of touch can be trained, developed or improved. As stated before—the child's individual attitude—the will to learn—is the first essential factor in mastering Braille. It is the most definite single element, for a right start. This is especially true of the "overage" child, and the pampered one. May I mention at this time that the recently blinded child who has had experience with reading print, presents a distinct and peculiar problem. Now, however, we are discussing the normal blind child who has had some pre-school or kindergarten training.

Children are introduced to Braille gradually. They soon learn that something which we know as a symbol, stands for a word. Since we have not the material aids of pictures, we usually begin with action words and familiar name words. The finger cannot cover the space of a short word in Braille, as the eye does with print. For this reason, the child must know the individual letters. Every child knows "ball"—which in Braille is made up of a simple combination of dots. By growing familiar with the letters, he can pass over them with increasing speed, until ultimately the action is so quick it *appears* to be a single movement. Soon he may master more words having many of the same letters as "call," "fall," "hall," and then advance to other familiar words as he masters more letters. When several

familiar words are learned, the teacher may make a game of the lesson by having the words written on separate cards, notched at the top to be right side up—she keeping the ones the child does not recognize, and he retaining the ones he knows. When he has mastered several words, so that he no longer needs to *spell them*, he is ready to start in a similar way on phrases and simple sentences, based on his experiences. Though often a tedious process in the beginning, this rapid recognition of words as wholes, and phrases as a unit of thought, are absolutely essential to fluent and intelligent reading.

Blind children are encouraged to place the hands with all of the eight fingers on the line—the right index finger at first being the only active working finger—the others help as guides, and gradually assist in recognizing the words, until with the most skilful readers, all the fingers are active. This facility is usually acquired without formal teaching. Gradually the child begins to read silently, in advance of the words he reads aloud. Usually he does this with his left hand—this reading ahead is similar to what we all do in reading print. Very often a blind child “scans the page” with his left hand while he is reading aloud—with his right he measures the length of the paragraph, etc. We have found that the most intelligent readers thus speed up their oral reading, by reading in advance and being familiar with the thought ahead. This is done unconsciously—if asked to do it deliberately most children say they would be confused if they read two lines at the same time.

In the initial stage of reading Braille, relaxation, or physical and mental poise are very necessary in order that interest may be sustained. Fatigue must be avoided if the blind child is to learn to enjoy reading. Many older persons who learn Braille never acquire this relaxation which, no doubt, accounts for the fact that so few adults really master it. The finger tips must be pressed lightly on the dots, as heavy pressure blurs the impression and confusion results. It is the succession of stimulations which result from the friction, rather than the heavy pressure which causes the clear cut impression. The “sense of touch” as we speak of it, is a combination from a number of senses. The organs of pressure, temperature, and pain are involved and probably a large part is played by the “Kinaesthetic sense.” Experiments conducted in Germany have proved that the finger interprets better what lies under it, if it does not press down too hard upon the object that is the stimulus.

“Although the organs of pressure can be stimulated only by a deformation of the skin sufficient to bring the sense organ into direct or indirect contact with the stimulus, the amount of deformation required to arouse the organs of pressure causes the deformations to overlap. This overlapping is probably responsible for a confusion of sensations which results in the inaccurate perception of Braille dots and letters when the fingers press too heavily on the dots.”¹

This theory is confirmed by the fact that our most accurate and fastest readers have the lightest touch. During a recent test a girl ten years old read orally for ten minutes at the average rate of 146 words per minute. (Just So Stories.)

¹Maxfield, Kathryn: *The Blind Child and His Reading*. Pages 40-41.

Speed and accuracy even in simple reading is very desirable, since blind children, like seeing children, if the reading be too difficult, develop habits of lip movements and a sort of inner speech. As these habits are detrimental to comprehension and speed in reading, special attention is needed to check the formation of these habits.

Vocabulary

The blind child's vocabulary is often very meagre. A rich vocabulary is an excellent tool in good thinking, and if the blind child is to enjoy his reading, there must be a continuous and constant training that he may increase his individual vocabulary. In order to determine if the child really grasps the thought of his reading, more and more time is given to silent reading, followed by intelligent questioning to determine his comprehension. Fluent oral readers may be deceptive, since often they read with good expression, words that convey little or no meaning to them.

Children by this time, must recognize that reading is a thought-getting process; that reading is not an end in itself, but a means of bringing new thoughts to them. Therefore, they must learn to read independently and intelligently, no matter how simple the task. When children have mastered the mechanics of reading, the procedure to develop their cultural tastes and love of reading is much the same as with seeing children, so needs no place in this discussion.

Conclusion

After teaching both seeing and blind children, we are definitely convinced that most of the problems encountered in teaching reading are those of degree rather than of kind, and psychological rather than physical. While Braille is necessarily a slower medium than print for the average person, the sense of touch is but another entrance to the mind. In reading the sentence, "The little red hen found a seed," to the seeing child four eye glances will be sufficient for reading it if he is familiar with the words. The same line in Braille takes more than twice as much space and must be read with a continuous movement over all the seven words. To make this a little clearer, think of the moving picture which depicts any beautifully coordinated movement. A horse jumping over a hurdle will convey my point. If the speed of the operating machine be materially cut down, we recognize the action as a succession of many definite movements. It was the speed which produced the effect of one action. Thus in reading, there is an orderly succession of perceptions of words and groups of words, the process being slowed up only when it is necessary to verify an unknown word. We are apt to lose sight of the fact that the finished product is the result of recognizing and grouping words and phrases. In order to get the same results from reading which the seeing child obtains, the blind child must have the most skillful teaching, and develop within himself powers which unless developed from necessity would remain latent.

I have tried to present to you some of the problems of the blind child and his reading. Since we have not yet determined just how he interprets the world about him, we feel our efforts are still in the experimental stage, that perhaps the child may be learning to read in spite of us.

COMICS FOR THE BLIND

*Fred Laswell, Cartoonist
Bethel, Conn.*

Frankly, contributing to the Claremont College Reading Conference Yearbook gives me the willies. It is an honor but I don't know so much about the pleasure. I feel like the pig must have felt in the parlor. Since I didn't quite graduate from high school and now draw a daily comic-strip, the thought of being a contributor—oops, my spelling. Oh, well—if Margaret Regnery has the courage to invite me to your ball game the least I can do is be bat boy.

It all started in Washington, D. C., about a year ago. I was sitting at my drawing board, scratching for ideas, when the question hit me—"Do the blind people have comics?" I wrote a friend of mine in Florida, who was active in work for the blind, and asked him to tell me all about the comics that the blind people read. He replied that as far as he knew, no successful method of bringing comics to the blind existed. I have since asked several educators of the blind the same question. They gave me the same answer.

I began making experiments right away. After making hundreds of drawings of faces and figures, I evolved what I felt to be the simplest comic character I could produce. Charlie was his name.

My next problem was to develop a simple method whereby the blind person would have complete orientation at all times. I had to show them where I wanted them to look and when. For this purpose I used a pointer in the shape of a v. It would point like an arrow to where I wanted them to look—up, down, left or right. While reading the Braille text a blind person would come to a pointer, pointing down. They would move their fingers down the page and come to the drawing. After they had looked at the drawing they would come to another pointer which would direct them back to the margin. Should the comic character speak, the speech would be directly under the figure, just the opposite from the comic balloons which appear in our daily strips.

First, I acquainted the reader with the top of Charlie's head. Next, I showed them Charlie's head with his two ears attached and then, step by step, I added a portion of Charlie's figure until he was completed. After that Charlie went through several facial expressions and some simple actions, such as walking, taking exercise and putting his hands on his hips. Charlie then acquired a wife and a father-in-law. When the two new characters entered the scene it was not necessary to build them up step by step. The method remained the same only the father-in-law had whiskers and Gertrude, Charlie's wife, had long, stringy hair that covered her ears. Combinations, such as these, to produce different characters are limitless. The three characters were then incorporated into a book which explained the method and at the same time told a short, humorous story. Everything was fine except that no blind people had seen Charlie.

With wet and nervous hands I stood by at the Columbia Polytechnic Institute for the Blind in Washington, D. C., while two blind people read the book for the first time. They laughed aloud at Charlie's antics and remarked afterwards that they had never seen anything quite to clear.

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From there, I took my book to the Maryland School for the Blind. Mr. Francis M. Andrews, the superintendent, sat beside me while five children and one teacher read the book. Mr. Andrews later wrote in part—"The comments made by the six blind people who tried it out were most encouraging. Their interest was apparent, as well as their desire to see more comic strips."

Miss Alice Rohrbach, Chief of the Braille Transcribing Section, Library of Congress, wrote after she had read the book—"The method is so clear that the possibilities of its use in other fields are interesting to contemplate. We recommend it with enthusiasm, and we shall do everything possible to encourage its development." Since then I have shown the book to many blind people including the wrestling team of Perkins Institute, Dr. Irwin and some of his staff at the American Foundation for the Blind and also a group of children and grown-ups at the Lighthouse in New York City. Charlie has been easily understood and enjoyed by every blind person who has seen it to date without exception.

It is my belief that before this method is released it should be subjected to extensive research. This research should be conducted by a non-profit corporation composed of prominent blind educators. This organization should act as the official clearing house for additions and refinements to be incorporated into the method. This is vitally important if confusion to the blind is to be avoided. Various types of books should be produced. They should include an explanation of the method, extracts from Mother Goose, a comic book such as Dagwood and Blondie, a book of animals, famous men in American history, a vocational book explaining how to build a dog house and a book of maps. The reactions to these books should give conclusive proof as to the feasibility and scope of this method.

The books should be sent to selected field agents. These agents would note reactions and return this information to the organization for guidance in revisions. Reactions should be obtained from all types of blind people such as children and grown-ups who read Braille as well as those who do not.

A large majority of the blind people do not read Braille but they could enjoy the drawings in a short time because the method is so very simple. The text of their books could be printed in inkprint and the drawings embossed. Their family or friends could read the books for them while they followed the pictures. The son of a blind serviceman could turn the tables and read the funnies to Daddy.

I could ramble on and on but it would only be day-dreaming. The fact is, a comic book has been produced which a few blind people have really enjoyed. They want to see more. The rest is in our hands.

Division V

Primary Reading

Color allergies are just as real as food allergies. A person can be just as much upset by a color that does not agree with his emotional system as he can by an edible that cannot be assimilated by his digestive system. Often color allergies, as food allergies, are not identified because the person's discomfort has not been traced [read] to the objectionable source.

George D. Gaw

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PRIMARY READING

INTRODUCTION

The title "Primary Reading" is used herewith to connote the reading of objects or things by means of first-hand direct contact with them. It is *primary* to and an essential prerequisite of "secondary reading" which refers to the reading of symbols which represent things.

Mr. Gaw, Director of the Color Research Institute of America, has read color far more effectively than has been done by most people. While he chose to title his discussion, "Color As An Aid In Reading," the reader will readily sense that color is also an object to be read in its own right. "Color allergies are just as real as are food allergies." Color reading enters dynamically into many aspects of life. Director Gaw has presented a timely and stimulating discussion of this task of reading.

The term radar is much before the public these days. Mr. Beyer's discussion of "Radar Oscilloscope Reading" tells how the echo "pips" are read and in this manner sight is unbelievably extended. Reading radar oscilloscopes may be far outside the experiences of most of us but it will be of value to read about it, since radar oscilloscope reading involves skills, abilities, and concepts similar to those utilized in many other applications of the reading process.

COLORS AS AN AID IN READING

George D. Gaw,

Director Color Research Institute of America

Man read and interpreted color, even in the earliest stages of civilization. The Assyrians and Egyptians worshipped the sun and associated color with light. They symbolized life and goodness with bright colors, and death and evil with black. Let us outline here some of the known powers of color and then consider how color on the printed page can be an aid to reading.

Colors are in the light but color harmonies are in the eyes. It is commonly recognized that blue and yellow, and likewise green and red are harmonious. Although knowledge of color harmony is acquired, color harmony is basically a physiological phenomenon. Blue and yellow are actually seen through one optic organ and green and red through another. (The two organs cooperate in seeing color mixtures, such as orange or violet).

The physiologically related colors complement and intensify each other. Looking at one of the two colors brings forth an after-image of its complement. After looking at green, then turning your gaze to a white or

neutral surface, you see red; after looking at red, you get the sensation of green; and likewise with blue and yellow.

When complementary colors are placed next to each other, the effect is both stimulating and pleasing because the after-image of one color enhances the other. The blue after-image from yellow enhances the blue, and vice versa. The red after-image from green enhances the red, and vice versa.

These visual color phenomena take place for all people except those few who are color-blind. Color-blindness is only in pairs of primary colors, except in cases of partial disintegration of a color organ. Blindness to red and green is much more common than blindness to blue and yellow. Although three to four men out of a hundred are color-blind, only one out of three hundred women is thus afflicted.

The following case history is an example of the power of the after-image. A meat market which for years had sold the choicest meat products had the display room redecorated, the management anticipating an increase of business as a result. Instead, business began falling off rapidly. All kinds of experts were called in to find what was wrong. Among them was a color specialist who, immediately on entering the display room, detected the trouble.

"Your color scheme is the source of the difficulty," this specialist told them. "You have bright yellow walls, which produce a blue after-image. This blue after-image is carried over to the red meat, causing it to appear purplish, and the customers think it is stale or even spoiled." He prescribed a color that would enhance the red in the meat—a blue-green value that is the exact complement to the color of fresh meat. After that color was applied to the walls, the meat took on a fresh look—the red becoming redder than ever.

Analogous colors, that is, colors that resemble each other, are also harmonious, but these have a tendency to soften each other, whereas complementary colors intensify one another.

Analogous colors are always one primary and the other a secondary color. They are analogous because they have a common color element. Blue is analogous with blue-green because green contains blue. Purple is analogous with purple-blue because purple contains blue. Orange is analogous with orange-yellow because orange contains yellow, and so on.

Analogous colors, having close affinity, are either both warm or both cold. Of the complementary colors one is always warm and the other cold.

The warm colors are yellow, yellow-green, orange, yellow-orange, orange-red, brown, ivory, beige, buff, and all other colors that are predominantly yellow.

The cold colors are blue, blue-green, purple-blue, purple-red, and all colors predominantly blue.

Psychologically, the warmth or coldness of a color is very real, although we are generally unconscious of the power that colors exert over us. Only occasionally do we hear an expression of color power awareness such as, "I hate this color," or "I just love that color."

Color allergies are just as real as food allergies. A person can be just as much upset by a color that does not agree with his emotional system as he can by an edible that cannot be assimilated by his digestive system.

Often color allergies, as food allergies, are not identified because the person's discomfort has not been traced to the objectionable source.

Some people feel very uncomfortable with certain types of red. Others become depressed when surrounded by a strong blue. Still others have a great dislike for yellow. The emotional constitution of some people is such that it cannot react normally to warm, vibrant and stimulating red, to cold, sedative blue, or to brilliant, sunny yellow.

Normally, however, people react to colors in the same way they do to other elements. They generally surround themselves with diluted colors of both cold and warm hues, unconsciously seeking a balanced color diet of sedatives and stimulants.

The influence that colors have over our behavior is an important factor in our general well-being. There are many case histories of the psychological power of color. Outspoken reactions for or against a color are numerous enough. And nowhere does color preference express itself more definitely than in the merchandising field. Merchandisers know that numerous articles sell well or sell very poorly because the color of the article is, or is not, pleasing to the majority of people.

We should keep in mind that in addition to color's innate powers, color symbolism plays a very important role through the associative process. Although, basically, white has no specific psychological effect, symbolically it often expresses purity.

Color symbolism, like all symbolism, is an important element of our tradition and culture. Therefore, it plays an important role and its power should not be underestimated. Also important is the fact that color symbolism is not the same in all parts of the world.

A manufacturer of pins who exported his product to China discovered the power of symbolism at considerable cost. The pins were packaged in deep blue paper. Although in this country the pins sold very well in such a wrapper, they did not sell well in China because the Chinese associate that shade of deep blue with evil. There are numerous similar case histories that illustrate the symbolic power of color.

Color is an important factor in heating and it can be used in controlling temperature. Colors reflect or absorb heat in accordance with their proximity to black or white. The darker the color, the more heat it absorbs; the lighter, the more heat it reflects.

For example, black clothes absorb heat and are therefore best for winter wear when we want to retain heat on our bodies. White clothes reflect heat and are most comfortable in summer when we want to discard heat from our bodies.

Color is also a factor in lighting. Colors reflect and absorb light as they do heat. The darker the color, the more light it absorbs; the lighter the color, the more light it reflects.

The kind of light reflection that surfaces have is a significant element in all interiors, and it is a major factor in the industrial plant where critical seeing is of prime importance.

Color also has power in eliminating harmful rays. Brown and green glass containers have for many years been used to protect medicines and foods from ultra-violet and infra-red light.

Summing up the power of color: Colors have specific effects on vi-

sion (legibility, distance visibility, and appearance of adjacent colors). Colors have characteristic psychological influence. Colors have symbolic significance. Colors effect us daily in such avenues as lighting and temperature.

Color is also an aid in the transmission of ideas. Although language is the medium of daily communication, it is not always adequate for transmitting a message effectively. We know that language conveys only a small part of an idea. That is why we often call on graphic art and color to become the allies of written language. Color on the printed page is perhaps the most direct aid to reading and understanding.

Ink and paper contrast are of prime importance. For printing or typing purposes, paper should be very delicate in tint. When placed next to a paper that has color or full saturation, the delicate tint is hardly identifiable; next to its complementary color, however, the tint takes on a distinctive rich quality.

Although paper of such delicate tint is not immediately identifiable when isolated, it nevertheless has a strong psychological power. Its effect is more often on the subconscious mind than on the conscious.

A delicate tint of red (pink), for instance, is not as likely to cause a remark such as "Look at this color." It will, however, produce a definite sensation, and when combined with a complementary color, it takes on glow and stimulating character.

One reason delicately tinted papers are recommended for reading matter is that tints promote maximum legibility. Deep colors have too little contrast and brilliant colors are much too vibrant and cause eye strain. Obviously, a color that would interfere with legibility would defeat the primary objectives of getting the message read.

Another reason for choosing delicate tints is that they are never over-emphatic. When a color is too emphatic and attracts too much attention, it can divert interest from the typed or printed contents. Black type on a red background, for example, is a poor combination. The red is very attractive and stimulating, but the type is difficult to read.

However, the printed word itself can be greatly enriched with color. Color inks, properly used, contribute much strength to the printed page. A message that is printed in the right color ink is easy to look at, attractive, alive, interesting. A message printed in the appropriate color has maximum readability, plus color stimulation.

The time a person spends in reading a page depends on the interest that it possesses. Using color with appropriate type-faces for the copy means adding interest to it. Color is not only a factor in getting attention but in holding the interest as well. It is therefore not advisable to depend on words alone when setting up type for conveying an important message.

Using color indiscriminately, however, is often worse than merely using black ink. To get the full value of color, it must be used appropriately, which means scientifically. The basic principles involved in color usage are very simple.

Contrast is a basic requisite for legibility or readability. The contrast ordinarily achieved with black ink on white paper can be attained with color in two ways. One way is by adding black ink to the color

ink, thereby deepening the color value. Another way is to use complementary colors.

Printed copy in black ink is actually not black but grey-black in tone value. In using color ink, the color takes the place of the grey.

On white paper, any of the colors that have good legibility can be used in pure hue if the situation demands it. That is, it is suitable if the pure color in some way is in keeping with the subject, if the message is short, and if the type-face is large.

In the order of their effectiveness, the "legibility hues" are blue, purple, red, and green (orange and yellow inks have no legibility value).

For books, whenever possible, it is advisable to take advantage of colored paper for lengthy copy. The color of the paper should be a delicate tint and a sufficient amount of black should be added to the ink to attain maximum legibility. The quantity of black depends on the amount of color in the paper. The deeper the color of the paper, the darker should be the ink.

For lengthy copy, it is usually advisable to use a color of ink that is related to the color of the paper. For green-tinted paper, green ink; for blue-tinted paper, blue ink; for red-tinted paper, red ink. The color ink should at all times be deepened with black.

In lengthy copy, color power is most effective when subtly used. Delicately tinted papers and color inks of deep values (mixed with black) provide color stimulus of which the observer may be unaware. The colors produce pleasant sensations although the average reader is not likely to be conscious of what causes the effect.

For short copy, or where sustained reading is not called for, an ink of a color complementary to the color of the paper is most effective. For green-tinted paper, red ink; for red-tinted or pink paper, green ink. Again, if the type-face is small, the color value should be deepened considerably with black.

In places where it is desirable to bring out key lines of the copy, complementary colors should be used. Such color combination causes the printed lines to stand out because a color is intensified when placed next to its complement.

A safe rule to follow is to use a color of ink related to the color of the paper for lengthy copy, and the complementary color of ink for the highlights.

Using two colors of ink on color paper to convey a message in type means strengthening the message with maximum emotional appeal.

In cases where paper of brilliant color is best, as on some booklet covers, a color of ink complementary to the color of the paper should always be used. Contrast is then achieved not by tone values (black and white) but by color complement. This means that just as black looks blackest next to white, so green appears greenest next to red, and blue, bluest next to yellow.

Factors, in addition to ink and paper contrast, contributing to legibility or readability are (1) character of the type-face, (2) type size, (3) type boldness, (4) leading, (5) length of line.

Type-face styles have distinct characteristics that can express the nature of a message. Some type-faces express informality, others austerity.

Some are delicate in character, others denote strength. There are ornate type-faces, and some of Spartan simplicity.

Type-face styles vary greatly in their degree of legibility. A type-face should be chosen both for expressing the character of the message and for maximum legibility.

Type-faces that are most effective in black ink on white paper are not necessarily the best for color inks. Some type-faces that have poor legibility in black ink are excellent for color ink.

The simpler the type-face, the more suitable it is for color ink. Although Futura and Spartan type-faces may be too austere for most purposes in black ink, with color ink these type-faces are very effective.

With simple, clean cut type-faces the color takes the place of serifs, providing flavor and character. Although characteristic serifs give distinction to type-faces in black ink, in color ink they often become blurred and weak, thus greatly hindering readability.

The size of type-faces is a second important factor in legibility. Sizes of type are indicated in points, 72 points to the inch. Six-point type is $1/12$ of an inch in depth; eight-point type is $1/9$ of an inch in depth; twelve-point type is $1/6$ of an inch; twenty-four-point type is $1/3$ of an inch.

Ten-point and twelve-point type are generally best for readability of lengthy copy. Because maximum color flavor is always desirable, for color inks the larger the type, the better. If circumstances such as space permit, for lengthy copy twelve-point type should be used.

Boldness of type-faces is a third factor in legibility and readability. It is very important when color ink is used.

Extra-bold type does not have good legibility in black ink. The wide area of black absorbs light and hinders readability. The blackness of wide type-faces, being greater than the white space between the letters, tends to merge the letters.

With color ink, however, bold type takes on another character. While light type does not give the color maximum advantage, bold type provides sufficiently wide area for the color to become a positive factor. The greater weight of the type-face becomes an asset when the appropriate color of ink is used.

The bolder the type, the less depth of color value is needed—that is, the less black content in the color ink. Bold type is particularly advantageous for short copy.

Leading is the fourth factor in legibility. It is a device used for making large masses of type easier to read. Leading means adding to the background space or white space between the lines of type. This is done by inserting strips of metal between the lines of type. Two-point leading is a minimum for favorable legibility; three-point leading is most desirable.

A fifth factor of maximum ease in reading is length of line. Experiments have demonstrated that ten-point type has greatest readability when set in lines of about $2\frac{1}{2}$ inches (15 picas) long. Twelve-point type has greatest readability when set in lines about $3\frac{1}{2}$ inches (21 picas) long; fourteen-point type, 4 inches (24 picas) long; and eighteen-point type, 5 inches (30 picas) long.

Color cannot take the place of a poorly chosen type-face or of a badly printed piece of work. Color, however, when properly used, tremendously fortifies the printed message through its attraction and interest-holding power. Because color is a major psychological factor, it is definitely a great aid in reading.

RADAR OSCILLOSCOPE READING

By Carlton M. Beyer

During the war there was a great deal of comment about radio detection and ranging which is commonly called radar. Most of the wartime applications of radar equipment were for military purposes and no civilian use was possible because of military security restrictions and no plant was manufacturing equipment for civilian use. The radar equipment used by the army and navy was designed without considering the initial or operating costs and these are factors which could easily make the commercial use of radar economically unsound. Since the end of the war, some of the security restrictions on radar equipment and its operation have been relaxed and several of the large wartime producers of radar equipment have been adapting radar equipment for civilian land, sea and air use. The use of radar equipment on ships or airplanes can do much to improve the safety of sea and air travel. Since radar can determine the position of objects, whether it is foggy, stormy or clear, during the day or night, it becomes possible for the officers responsible for navigation to proceed confidently and with a high degree of safety, if the radar operator is proficient and the radar equipment is operating satisfactorily. Radar, like nearly all other instruments that man has devised to extend his sight and to make accurate measurements, requires an experienced operator, who must be able to read the information derived from the equipment. Although numerous articles have been written concerning the uses to which radar can be put, very little has been published about the radar operator's task or his technique. Competent radar operators can interpret radar information under adverse conditions while less capable operators may be completely confused or furnish erroneous data that might lead a ship or airplane to disaster. A brief discussion of some of the peacetime radar operator's problems will be presented later in this paper.

Basic radar principles

Radar equipment transmits powerful pulses of very high frequency radio energy that will reflect from most objects. Some of the reflected energy returns to the equipment as an echo. Since the speed at which the radio energy travels through the air is known, it is possible to use electronic devices in radar equipment to measure the time interval between the transmission of the pulse and the reception of the echo as a means of

determining the distance between the radar equipment and the echo reflecting surface.

The radio energy seems to travel through the air much in the same manner as light. The radio waves ordinarily travel in a straight line and usually do not go beyond an extended line of sight. When radar equipment is installed on a high mountain peak or is in an airplane, the maximum range at which an echo can be received is much greater than for the same radar equipment at a sea level site. It should be mentioned, however, that there are several other secondary factors which tend to reduce the range of radar equipment, but the elimination of these factors cannot overcome the range limiting effect of a low altitude location.

Very high frequency radio waves can be focused into a very narrow beam by a directional antenna system that is comparable to the beam produced by a searchlight reflector which is used to focus light. When a powerful pulse of very high frequency radio energy is transmitted from the directional antenna aimed at an object, some of the radio energy will strike the object, and reflect. Meanwhile, electronic circuits shift the antenna connection to the sensitive receiver. A small part of the echo will return to the directional antenna where it is amplified by the receiver so that an indication on the screen of the operator's oscilloscope tube will be produced. The type of cathode ray oscilloscope tube used in radar equipment is a large glass vacuum tube with a round, flat end. The inside surface of the end of the tube is coated with a material which will fluoresce when struck by electrons moving at high speeds. The properties of the coating are such that the small brightly glowing areas produced by the electrons that bombard the area on the screen for a few millionths of a second, persist long enough to be seen. The electron beam is produced by an electron gun at the rear of the tube. High voltages applied to other elements of the tube accelerate the electrons, so that they strike the fluorescent coating on the oscilloscope screen while traveling at very high velocities. The circuits in the electron gun system are designed so that the brightness of the echo indication on the screen is related to the intensity of the echo. When no echo is received, there is no echo indication. When a strong echo is received the screen indication is much more bright than for a weak echo. Thus far, the electron beam has been considered to be stationary and that it was only possible to regulate its velocity. Actually, the electron beam can be made to move in any path at nearly unbelievable speeds by carefully controlling a magnetic field around the path of the beam.

With the oscilloscope tube and the allied equipment it is easily possible for an operator to see an echo indication at the proper position on the screen even though the echo was present for only a few millionths of a second. Radio detection and ranging is accomplished by sending out a powerful, short pulse with a directional antenna, using the same antenna to receive the echo, amplifying the echo which causes the oscilloscope to give an indication at the proper position on the oscilloscope screen. This process is repeated many times each minute. The type of indication on the oscilloscope tube varies with the type and the adjustment of the radar equipment. The most common type of operator's oscilloscope for peacetime use will probably be a Plan Position Indicator (PPI) oscilloscope. With a PPI oscilloscope, the pulse of energy causes a brightening at the center of

the circular screen which corresponds to the position of the radar equipment on the screen. The electron beam inside the tube moves outward on and along a line of bearing that is made to correspond with the bearing of the directional antenna. The speed at which the beam is moved toward the edge of the circular screen is carefully controlled so that when an echo is received, the beam is intensified thereby, causing a bright spot on the screen at the correct position which corresponds to the correct range and bearing of the target. By revolving the antenna slowly and by transmitting many pulses each minute, it is possible for a radar operator on a ship, for example, to determine the range and bearing of all other ships nearby. The characteristics of the echo indications on the oscilloscope tube screen are dependent on many factors. Some of the factors are: the sensitivity of the radar equipment, the size and range of the object, the material on the object and the relative smoothness of the object's surface. Metal surfaces ordinarily reflect much better than similar, non-metallic surfaces. Except when a flat surface is normal to the radar beam, rough surfaces generally produce more intense radar echoes than smooth surfaces. Some of these rules also apply to the reflection of light. These principles may be used by a radar operator in differentiation between different echoes.

Possible civilian uses for radar

At sea—All the largest vessels will probably have radar equipment aboard within the next few years. Eventually, there may be laws that require all ships transporting passengers and valuable cargo to have a radar installation and a qualified operator on board. The equipment will probably be operated when the visibility is poor and when the ship enters or leaves port at night. In certain areas, radar can be used to reduce the chances of a collision with other ships, icebergs that have sufficient masses of ice projecting above the water and with rocks or islands that may lie near the ship's course.

In the air—There are several uses to which air borne radar equipment can be put. Radar information is useful at night or during poor visibility conditions while the pilot is navigating over land or at a low altitude near the shore. Navigation over the ocean by radar information alone is not practicable at present because the range is too short.

The same type of radar equipment can be used as a means of informing the pilot of the range and bearing of all nearby planes. Another radar unit can be used to determine the airplane's altitude above the ground or the water. A radio altimeter has an important advantage over the type of altimeter that is actuated by air pressure, since the former is not affected by air pressure changes and indicates the altitude above the earth and not the altitude in relation to sea level. At present, most of the air borne radar equipment is too heavy to make commercial use possible.

On the ground—Radar equipment can be used to keep an airport control center fully informed of each departing or arriving plane's position and altitude. By placing these control centers several hundred miles apart, it would be possible to know the position of each airplane during its entire flight.

Another specialized type of radar equipment, supplemented by two-way radio telephone communication, can be used to direct a pilot to make

a safe blind landing even though the pilot may not be able to see the ground and the control operator on the ground cannot see the airplane.

Search type radar equipment has been used to locate the position of very active storm fronts, and as a source of data for making a fairly accurate approximation of its course and speed. In the parts of the world where the hurricane-type of storm frequently causes severe damage and loss of life, air borne radar equipment can be used to follow the storm and to radio the position of the storm center so that population centers can make all necessary precautions before the storm strikes. Regardless of the use to which the radar equipment is put, it is almost certain that an oscilloscopic indicating device will be used and that an operator will be required to read the indications thereon.

Some of the difficulties which a ship's radar operator might experience

Under ideal radar conditions, when a ship is in mid-ocean and the radar equipment is in good adjustment, the operator's task is an easy one. As the operator observes the oscilloscope screen he should see a small bright spot on the center of the screen that indicates the position of his own ship and the remainder of the screen will appear blank. Under these conditions, the operator must merely watch for the appearance of a bright spot somewhere on the "blank" area of the screen. That will indicate the bearing and range of an object. The object may be an island, a ship or a plane, so the operator must be able to identify it if ordered to do so. If an object is detected, the operator will inform the officer in command of the range and bearing of the ship. Several additional reports can be used to determine if the object is in motion. If the object is in motion, the course and speed can be determined from the range and bearing data. The speed data will tell whether the unknown object is an airplane or a ship.

If there is danger of a collision, the captain of the ship can alter course or decrease the speed of the ship to avoid this danger; meanwhile, the operator would continue to report bearings and ranges so that the effectiveness of the avoiding maneuvers could be evaluated.

If there are a number of ship echo indications, the operator must consider another factor in addition to bearings and ranges because the echo indications, or pips, may be at nearly the same range or bearing, the operator must be able to differentiate between the pips. This can be accomplished by visualizing a mental picture of all of the pips on the screen, by giving attention to only those pips which are from ships at short range, and comparing the size, brightness and configuration of the different pips.

Reliable differentiation is imperative if a ship is approaching on a collision course. If the report of range and bearing of another ship that is not on a collision course is given while the ship originally reported continues toward the collision, the radar operator may be aiding rather than helping to avoid disaster. Large ships respond very slowly to changes in speed or course so that any move which a captain has to make to avoid danger must be planned and put into effect long before the ship can respond.

The effectiveness of radar at short range is limited. It is quite difficult for an operator to differentiate between the bright spot at the center of the screen and a much smaller spot resulting from ship echo at very short

range. By careful manipulation of the controls and close examination of the screen a fairly accurate bearing and a rough estimate of the range can be reported to the captain. The accuracy of the report at short range depends on two main factors; the proficiency of the operator, and the characteristics of the radar equipment. During poor visibility conditions while there are a number of ships in a small area, a ship's operator may have to contend with interference from other radar equipment. The interference causes erratic flashes and patterns to appear on the oscilloscope screen that tend to increase the difficulty of the operator's job. By re-adjusting certain controls and by differentiating between the interference and the ship echo indications, a trained operator can overcome the effect of the interference. When dense rain clouds are present, a two dimensional image of the most dense portions of these clouds appear on the screen. When echo indications are weak, the cloud echo may tend to mask the echo indication. The operator must be especially alert to detect an echo in the area partially blanked by the weak indications resulting from the rain droplets in the clouds. A radar operator must be aware of all of these and other confusing conditions and know how to minimize the effect that they might have on the detection of ship or land echo indications.

An operator must be able to recognize the type indications on the oscilloscope produced when the radar equipment is defective. Radar, like any complicated electronic device, can become inoperative or operate with greatly reduced sensitivity. The operator must avoid furnishing false information and avoid having a false sense of security when no echoes can be detected because of faulty equipment. When a ship is being navigated inside a large harbor or in an area where there are a number of islands, radar information cannot be used in the same way as visual information. When a captain sees the shore and the buoys directly, he can navigate the ship through the channel with little difficulty. When the ship is proceeding up the channel with only radar information for navigation, a new set of principles must be applied. The shore line, especially if it is the edge of a low, flat island, may not be easily seen on the oscilloscope. The buoys may be at such close range or lie so low in the water that they do not produce discernable echo indications. Metallic structures, tanks, power lines, bridges, large buildings with metal trimming or fixtures on the other hand, produce strong echo indications, but they are usually an unknown distance from the shore line. By careful use of radar and fathometer information, however, a captain should be able to navigate in a harbor with safety during the time when visibility is poor.

Some of the difficulties that an airplane radar operator might experience

The radar equipment will probably be operated by either a radio man on the largest planes or by the co-pilot on the smaller planes. The operator will experience most of the confusing conditions that are present on shipboard in addition to several other problems. Airborne search radar is designed to detect all objects which may be within an imaginary sphere surrounding the plane. Radar on a ship is concerned only with the detection of other objects within an imaginary circle around the ship. To provide this "spherical" detection, the beam transmitted from the antenna usually extends from somewhat above, to a little below the airplane in a

vertical-fan-shaped pattern. This vertical beam width is necessary if another airplane which is slightly above or below is to be detected. Part of the lower edge of the beam, however, will strike the earth which will reflect echoes that will produce a nearly continuous background on the oscilloscope screen. The ground echo indications tend to mask other echo indications, especially at the lower altitudes where the ground echo will be the strongest. An operator must be trained to be able to recognize airplane echo indications by their motion and size. Inasmuch as there is an ever increasing range of airplane speeds as well as a marked increase in the number of airplanes in flight, there seems to be several reasons why airborne search radar equipment might be required for passenger carrying airplanes within the next few years as necessary equipment.

The ground radar operator's problems

The radar operator for a ground installation has nearly the same operating conditions as an operator aboard a ship. The one main difference in operating radar on land is that a multiplicity of fixed echo indications from nearby hills, buildings, power lines and similar structures will require that the operator differentiate between these fixed echoes and the airplane or storm cloud echoes before he can furnish accurate information.

Radar equipment has proven itself as a means of "seeing through" fogs, storms, or darkness, and has demonstrated that it can be used to determine the range and bearing of an object with a remarkable degree of accuracy. The radar, however, is only as good as its operator who must read the blobs of light on the oscilloscope so as to be able to report accurate and meaningful information.

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Division VI

Social Reading

For what is social reading of children if it isn't constantly seeing the world as they see it? And we must do that, I am convinced, if we are to be able to communicate with them. Failing to do it, we will go through a lot of meaningless motions. Our signals simply won't get across.

Charlotte Neely

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SOCIAL READING

INTRODUCTION

Social reading, i. e., reading people, human behavior and social institutions and practices, is an important use of reading. Narrow concepts of the reading process are not adequate to include this and similar kinds of reading tasks. And yet, few will deny that man's most significant reading activity is the reading of men. Miss Neely's discussion of "Social Reading" identifies some eight or more foci of interest in the social reading of children. They may well be used as a guide list to give direction and to point up this aspect of social reading.

The psychiatrist is certainly concerned with social reading. Dr. Covey reports on his reading of children's abilities to perform social reading. He says that of one hundred children who had failed in an important task with social reading and because of that failure were sent to Juvenile Hall, sixty-four evidenced "primary behavior disorder." The greatest impediment to success with social reading was not a vision or aural defect but it consisted of "too stiff an assignment" because the child was required to read a "broken home." One is impressed with the inconsistency with which we use great care concerning the vocabulary and concept load of textbooks and the contrasting disregard of comparable factors which affect the difficulty of social reading situations.

"Non-reading as an Expression of Resistance," is a discussion of an aspect of faulty social reading. Miss Vorhaus offers a theory which will prove stimulating and suggestive to those who work with children who do not read printed words. The role of ideas is effectively presented.

The psycho-drama as social reading device has many possibilities. As you read Dr. Moreno's presentation, observe that you give to your role as reader about the characteristics which are ascribed to an actor in psycho-drama. "Laissez faire audiences" are a problem in any form of social contact.

SOCIAL READING

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Teaching and learning are both approaches to what, even in our thrill jaded world, is the most fascinating adventure known to men, the communication between persons. Through long, long years we have learned by signals to get through to each other, but familiarity with this miracle should never dull our sense of wonder. Nor should we allow ourselves to assume merely because others seem to be getting our signals that they really are doing so—or the reverse. We are all familiar, out of our own experience, with times when someone else's signals were so difficult to get or so

meaningless to us that we put on a mask of what we hoped was pleasant intelligence and withdrew into a world of our own, or—if we were where we could—just blacked the whole thing out and went about our own business. The teacher is always faced with the possibility that her pupils are doing just this—that they are going through motions but that what she is trying to communicate is actually being either distorted, diluted or completely lost. If that is not to happen the teacher has got to do a lot of accurate social reading of her pupils. She cannot simply "give out" and rest in the assumption that what she gives is going to be received as it was sent, or even that it is going to be received at all. To give a simple example of what I mean, imagine a radio station located at the headquarters of the United Nations and charged with getting a message of vital importance to the peoples of the world. In order to get the message to Russia someone who knows Russia would not only have to put that message in the Russian language, but would have to couch it in terms which the Russian people would be likely to understand, and it would have to be sent out at a time when it would have a chance to be heard because it was not conflicting with local Russian interests. The same would be true for every other country in the world. It would be folly to do it any other way and yet teachers often try to teach without too much awareness of the individuals they are trying to reach or of the factors which must be taken into consideration as to each pupil if that teacher is to get herself through to those children. What we sometimes call "dull" children are not necessarily dull at all. They may be children who have had more than their share of dull teaching.¹

I should like to pause here to state that my interest in this problem is not an academic one. It is a very practical interest born of concern over what happens to children that we do not teach. It is possible to weed out such from our schools. We do it. But we do not, and of course can not, weed them out of society. The schools can get rid of them, but they stay with us just the same. And in a democracy, each such person eventually has as much voting power—if perhaps not as much voice in government—as those whom the schools do manage to teach. Democracy is a form of government peculiarly dependent upon an educated people. It cannot possibly function well where any large proportion of the population is ignorant.

However, long before the child we are failing to teach in school becomes political fodder for some boss, he is likely to make us aware of him for more obviously distressing reasons. Not being able to succeed in school, and being after all human and therefore needing to succeed, he may, and often does, turn his attention to the field of anti-social conduct and in this area, he can at least command attention. The spate of articles and the enormous amount of attention now centering on the problems of juvenile delinquency, prove beyond the shadow of a doubt that in this area such youngsters can and are succeeding—succeeding at least in creating a problem and in getting attention.

Because I have to concern myself with children who give evidence of becoming such problems and because I am convinced that a large proportion

¹I am well aware that there are really dull children. I am not concerned here with them.

of them could be headed off from much activity by good teaching, I am deeply concerned that they should get it. You are concerned too, I take it, or you would not be working your way through this paper. What, then, are some of the things that an effective teaching job requires a teacher to be able to read about her pupils? Bear in mind, please, that while I continually talk about children in the plural, it is imperative that children be considered one by one. They are individuals and can be considered in groups only to a very limited extent because the combinations of social factors are never quite the same for any two.

First of all, I should list the physical condition of the child. A good teacher must know the physical condition of each pupil. This seems almost too obvious to deserve mention and yet the importance of such knowledge cannot be overemphasized and I am afraid it cannot be taken for granted that even a conscientious teacher will necessarily take the trouble to put herself in possession of the available data in this regard. I cannot think it is necessary to labor the point. Obviously, a child's physical condition is extremely important. I wish to cite a few rather extreme situations to make myself clear. Jean, a fairly good student, was reported continually absent in her first year of high school. A call in the home revealed the fact that she was absent because she was hating school and failing in all her subjects. It further appeared that she was failing because she just refused to take any part in class recitations. Called on to recite, she said nothing. Her teachers assumed she was not quite bright and failed her. The fact was, however, that she was of normal intelligence and had always done well in junior high. She was what is known as a psychological stammerer. Her failure to answer when called on to do so was due *not* to stupidity or ignorance of the answer, but to a physical contraction of the muscles of speech. She *couldn't* speak—that was all that was the matter. Her teachers in junior high had known this and by various devices, such as never startling her with a sudden question, permitting her to do a disproportionate amount of written work, and so on, they had eased her past many difficult situations and helped her to achieve the success of which she was capable. She went on to high school without a proper record of this difficulty and in the *melée* of the larger situation had somehow failed to encounter any teacher able to read that particular difficulty and, as a result of so doing, help her.

George, a junior high boy, began, in about the ninth grade, to do poor work. As the year progressed, his failure became increasingly acute. An awareness of this boy by an alert teacher revealed the astonishing fact that this boy could not—or at least was not—reading at all. He had a visual defect which had always prevented his reading—mirror vision, I believe they call it. His mother had been teaching him at home, and because George had a good memory and a fair amount of pride, he kept abreast of his class until the work got too difficult for his mother whose schooling had been very limited. Then he began to fail. His failure was entirely chargeable to a physical defect which could be and was corrected.

Peter, in the early elementary grades, was only an average student until a routine check of eyesight in his class revealed that his vision was only about one-fourth of normal. Properly fitted glasses put him in a position to do not merely average work, but outstanding work. Furthermore, his

delight at being able to see the stars, which he did with much greater clarity after he got his glasses, was a joy to behold. Had the school somehow failed to read his sight defect, it might have seriously affected his life because, although his intelligence is outstanding, school—depending as it does on normal eyesight—would have been increasingly difficult.

The second respect in which a teacher should be reading her pupils is the family language background—in other words, the language spoken at home. Certainly if the language which a child hears and speaks at home is other than English, this has a great influence on his learning at school. It not only means that he must be bi-lingual but it may also be a barrier between that child and his parents, who, because the language they use is not English, are not completely adjusted to life in America. At least the children of such parents are apt to feel that their parents don't understand life in America and this is one more difficulty superimposed on the feeling which practically all children have that their parents are too old to know how things are now. Furthermore, these children who come from a foreign language background may add to all the rest of it a certain element of apology in regard to their parents. Children are conformists and variations make them uncomfortable. They want their parents to be like other children's parents. If they are not, the children may even be ashamed of them.

Even if the child's home language is English, it may still be quite a different brand of English from that spoken by the teacher or used in school work. Not only may the home language consistently employ bad grammar, it may also be sprinkled with words and expressions not quite acceptable in what we quaintly call polite society. You remember, if you have read "Minor Heresies" by John J. Espey,¹ the account of how the author, the son of a Presbyterian Missionary in Shanghai, went to a Chinese kindergarten and how, with the best and the friendliest intentions, he shocked and horrified the Chinese teacher and his little Chinese fellow-pupils by language which was so vulgar that, even after he was a grown man, a professor at Occidental College and writing a book about his childhood in Shanghai, he could not bring himself to put into English what he had quite innocently said on that occasion. He used that language because he had heard it—picked it up from the alley gang across the canal from the mission compound. To him it was the Chinese language and in his dealings with the alley gang, was the accepted medium of communication. Children who hear coarse expressions, vulgarity and obscenity, will use such and a smart teacher will understand why and teach with wisdom and tact.

A third thing that social reading of one's pupils requires is an awareness of the economic status of the child's family. There used to be a slogan, "Tell me what you eat and I'll tell you what you are." Well—tell me what a child's family has had in the way of income for a period of time and I still won't be able to tell you what that child is, but I will know a good many things about him. More than mere money—income is involved in economic status. Is the family-head a professional man, a white-collar worker, a laborer? Whatever that status may be, is it stable or uncertain? Children worry too, you know. These factors all add up to significant differences in the child and in the best way to reach him.

A fourth area to be reading children in, is the whole matter of their recreation. How do they use their out-of-school leisure? Do they listen

to the radio? Much? Little? Is their listening regulated by the family? If so, on what basis? Are they allowed to sit up late to hear thriller-dillers? Do they ever voluntarily listen to "good" programs? There are a thousand significant indications to be read in this area. Children drop clues all the time which a clever teacher reads.

How about the movies? Do they go at night? How about Saturday afternoons? Do they see every show that comes along or is there some selection as to which they see and which they do not? If so, who does the selecting and on what basis, if any? Do the children have any form of recreation which involves their own active participation—things which they do for themselves—things which are non-commercial? Is their play usually social, or do they prefer to play alone? Can they have a good time inexpensively or without any expense, or must they spend money to have fun? Does the family play together?

This whole matter of recreation is very significant because what a child likes to do can be fitted into what he must do in the way of learning. If this is not done, learning can be very, very dull indeed.

A fifth respect in which a good teacher should be reading her class is the impact of the war on the children. The war may be over. This is open to some doubt. The impact of the war, however, is not over. Influences set in motion by the events of the war years will be making themselves felt in the lives of our children for longer than I would care to try to estimate. Certainly they are being felt now. A good many times in the past few years, I have called in the home of some child to find out why that child was out of school, only to step across the threshold of that home into fresh grief—someone close to that child killed or missing. Any teacher knowing of such a situation in a child's life is aware of adjustments that have to be made in teaching that child. But there are other situations, just as significant, not always so well known. Take for example the child who has a father or a brother who is a conscientious objector—perhaps in a Conscientious Objector's Camp. It is easier to be proud of gallantry in action than of bravery in defense of one's deep convictions and particularly if those convictions are unpopular—perhaps unpopular to the point of being socially disgraceful and "unpatriotic." It is cruelly hard for a child to find himself torn between love of a father or brother and the public condemnation to which that father or brother's stand in regard to war has subjected him. It is bitterly hard for an adult to face scorn. It is harder for a child because he understands less and because he has fewer inner resources on which to draw.

War work has deeply affected children—upsetting often their usual and regular hours for meals, for going to bed and for getting up, and leaving them many times for too long periods unsupervised. Much of that is over. Not all, however. Many women who went into industry for the first time during the war, and believing such work outside the home to be temporary, will never be able to give it up and go back to homemaking as their sole occupation. For too many, that earned pay check means the difference between dignity and self-respect and the lack of these in relation to their husbands. For others, the rising cost of living means that every possible income earner must go on working in order to provide the necessities for the family.

Another extremely important facet of the war impact on a child is this whole question of attitudes towards other races. Such attitudes in children are largely imitative and an alert teacher senses them quite easily. During the war years, many unfortunate attitudes were built up which we now have to deal with. We shall fail to do so at our peril. Sometimes the home is building one set of attitudes and the school a different set. Sometimes they are both working in the same direction. That is more effective and therefore, it is to be hoped the direction is right—or at least more nearly right than wrong. But, at any rate, no teacher who hopes to be effective can fail to watch for the signs which indicate race prejudice or the absence of it. Just parenthetically here, and to indicate that I do not feel the school is always right and the home usually wrong, I wish to cite an experience of mine in this area. A few years ago, I attended an open-house at a certain school where much of the pupils' work was on display. In the hall of that school there was an exhibit of posters made by the children in the upper grades. They were war posters—most of them exhortations to buy bonds. One whole group of posters bore the slogan "Buy a bond and slap a Jap." For any school, such activity would, in my opinion, be unthinkable. But this school had had up to a few months before this particular time, quite a number of pupils who, though Americans, were of Japanese descent. They had been evacuated along with all the Japanese upon the outbreak of war. Presumably they would some day be returning. But here was a teacher who in school time and on public pay was intentionally fostering race hatred. There were probably children under her care who did not need much of a shove in this direction, but I am fairly certain that there were some at least who were troubled by this poster contest. I sincerely hope so.

Again, a teacher should be eager to read the geographical background of her children. Perhaps this is particularly necessary in California where even now a large number of us have come to wherever we are from somewhere else. If there are children who have come from a foreign country, not only is this important for the teacher to know in order to make necessary adjustments in techniques for teaching those children, but splendid material is right at hand for building understanding of other nations and other peoples. In recent years, in California, there has been an influx from other parts of the United States and too often teachers do not know where their pupils have come from. When they do know and the place is Oklahoma or Arkansas, or some place in the deep South, instead of using such information to help understand the child and supplement his needs, if supplementary help is indicated, the teacher may figuratively throw up her hands, raise her eyebrows, shrug her shoulders, or in her own way, express patience-tried-almost-past-power-to-endure, and think, even if she doesn't say so, that this explains everything. Perhaps this is as good a place as any to suggest that social reading is not a one-way process. Children are reading the teacher too. They know much more surely than you would wish to believe, what the teacher thinks about Oakies and Arkies. I heard of a Social Worker dealing with a 15-year-old boy in serious trouble the other day who asked that boy where his family came from. "Oklahoma," replied the boy. "Well, *that* explains everything," said the Social Worker. Incredible, isn't it? I wish it were not true.

Right along this same line, there is another quite important thing that

a teacher could well try to read as to each of her pupils and that is whether or not the family is more or less permanently located. Do they own their home or are they renting or perhaps even living in a trailer? The whole matter of housing is significant not only as an indication of permanence or impermanence of residence, but also as it affects a lot of factors which in turn affect a child's learning—such as sleep, for instance. But to get back to the question of permanence. If the family is reasonably settled and planning to remain for a fairly long period, a child can settle down to the important businesses of making friends and getting on with his school work. But, if the family is constantly poised for flight, it is much harder for a child to feel that what happens today, or tomorrow, or next week is too important. "We are going to leave here, anyway," such a child will say. The small amount of self-discipline necessary to do any kind of acceptable school work may be harder than a child's capacity for self-discipline is equal to. He needs a teacher who is aware of why it is so hard for him to settle down and who will try to help him do it. She certainly cannot do it if she does not have the foggiest idea what is making him restless.

This whole problem is not made any easier, either, for the children so affected or for the teacher when, as is often the case, the family sense of impermanence is a more or less permanent condition. I know of one family, for instance, which has been for nine long years on the point of departing for Long Beach. The day of departure has been set scores of times. As far as I know, they have never even been to Long Beach. Certainly they have not moved there to live. Now they have discarded Long Beach completely and only last week the mother informed me they would be going to Iowa "just as soon as possible." I do not question it, but I do wonder when—if ever—it will be possible, and I think the teachers of the children in that family will do well to act as though Iowa just was not in the picture at all. But, at the same time, they must also be aware that for the children in that family, Iowa is just around the corner.

Another aspect of a child's background which is significant and should be watched by his teacher, is the age at which the young people in that family mature. If he has older brothers and sisters, did they leave school early to go to work? If so, was it necessary because of family need, or was it because they were eager for adult life and impatient of the prolonged childhood implied in a longer school period? Also, if this child has older brothers and sisters, did they marry young? Does this particular child show signs of early maturation, physical or mental? The war has affected young people materially in this matter of early maturation, but it has affected some families more than others because the correlation between chronological age and maturity differs widely from one family to another just as it also differs within family groups—as to the various individuals in the group.

I have already spoken of the tragedy which war has brought into many homes and of the fact that where such tragedy affects a child, his teacher should know it. Death caused by war is only one sort of tragedy. There are other tragedies which are probably more devastating to a child's ability to meet the world. A broken home is nearly always a tragedy for the children involved. This is not only because physical and spiritual security is shaken (and children need security), but because a broken home puts a strain on a child's loyalties. He either takes sides with one parent or the

other or he is constantly shuttling back and forth between them with his affections pulled both ways.

Perhaps harder to bear than death in the family, or divorce of his parents, is the public disgrace of some member of the family. Tragedy of this sort in a child's life can enormously complicate the business of teaching him. But, if trouble exists and the teacher is unaware of it, the teaching job may perhaps not merely be hard. It may well be impossible.

Minor tragedies are also overwhelmingly important to children—and as to that, who is to judge as to what is a major tragedy and what a minor one? Anything that blacks out the joy of life for an individual is—for the period of the blackout—a major tragedy. A good teacher—and that means a sympathetic teacher—is keen to sense such blackouts and she had better not, as the Chinese say, “think lightly” of them. It does not help a child past trouble to be told—of course not in so many words, but told nevertheless—that his trouble is relatively unimportant. Children's troubles are not unimportant to them and that is what really counts. There is a passage in “The Friendly Persuasion” in which a very old man who is making the acquaintance of a little boy realizes how *old* he must seem to the child—“as old as God, I venture” and then goes on to the further realization that a little boy cannot possibly think his way forward to what it would be like to be an old man, but that on old man can grope his way back through the years to where the little boy is. Just so.

There are an infinite number of things an adult dealing with children should be interested in, but the last thing that I wish to talk about as having a place on my Social Reading List for Teachers is restlessness. How is the restlessness of the age in which we live affecting children? For years now, people who should know have been talking pretty solemnly about the relation of nervous tension to nervous and mental breakdown. I am not going to venture into that. I am willing to believe that there probably is a connection. As far as young children are concerned, I want to know how nervously restless they are and why. Children are normally very active and they have short spans of attention. But if their normally great activity is not being balanced by times of inactivity—rest—lots of it, I think we may reasonably expect, at the very least, to have trouble in teaching them effectively. Learning is an activity which literally eats up energy. If it has all been eaten up by too highly exciting recreation, by tearing around in an automobile, by a family week-end habit, and so on—there just won't be enough left for the learning which is prayerfully hoped for by parents, conscientiously labored for by teachers, and sometimes rather belligerently demanded by taxpayers' associations. Are the children you are interested in constantly on the go? It is the tempo at which they live which is significant.

Katherine F. Lenroot, Chief of the Children's Bureau, asked Mrs. Roosevelt what she thought President Roosevelt meant when he remarked once that “we must look at our civilization through the eyes of children.” Mrs. Roosevelt replied, “Children are, of course, free from prejudice. They are also free from the conventionalities and the hold which custom and tradition will lay upon them as they grow older. They are able to accept new ideas more easily and they adjust to new conditions far better than older people. For that reason I think my husband felt that if we could look

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upon the universe through the eyes of children, wiping out what tradition and custom had fastened on us in the way of habit and prejudice, we might find new solutions for old problems and accept new problems and solve them with greater ease." The old man in "The Friendly Persuasion" came to the conclusion that his joy in the friendship of the small boy was due to the fact that the boy "was in a way of speaking a new lens for his eyes, a means of discovering once again the world as it had been when he was young: bright, fresh, abundantly furnished with mysteries."

I agree with both and that adds zest to what I believe is necessary if we are to do an acceptable job with children. For what is social reading of children if it isn't constantly seeing the world as they see it? And we must do that, I am convinced, if we are to be able to communicate with them. Failing to do it, we will go through a lot of fairly meaningless motions. Our signals simply won't get across.

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SOME PROBLEMS AS SEEN BY THE PSYCHIATRIST

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It is fitting that psychiatry should be represented in any discussion of Reading Problems that lays claim to cover the subject completely. The time has passed when the psychiatrist is confined to the four walls of the mental hospital. His field is now the whole gamut of human behavior, both normal and abnormal. From training and daily experience, he is brought into close contact with the developing human organism as well as the mature individual. And he has this advantage, that of all the workers in this field, he alone is equipped to take a broad view that embraces all aspects of his subject. The human being is so amazingly intricate that no one mind can master all the details of Creation's masterpiece. The psychiatrist does not work alone. He collaborates with other workers—the psychologist, the teacher, the social worker. He accepts their findings and from

his over-all knowledge assigns each datum its proper place in the total picture. Through it all, however, he remains the physician and his chief interest is in the prevention and management of disordered function.

There are medical aspects to speech, to reading, to education. These are, in the last analysis, functions of the organs of the body and as truly the concern of the physician as is the proper functioning of the heart, the stomach, or the lungs. Furthermore, no organ of the body is sufficient in itself; all are "members one of another." Each must be nourished, receive its quota of oxygen, have its waste products removed. Each must be controlled in its growth and activity by the nervous system and the endocrine glands. Disorder of any of these interlocking systems will be reflected in every organ and every activity of the body. When we are concerned then with the process of learning to read and especially with the difficulties that are so frequently encountered, the medical aspect should be the first to be considered. The methods of teaching that are employed may be as near perfection as it is possible to attain, yet without normal bodily organs and normal sensory and motor nervous pathways, the results cannot be good. First we must have good materials, then good tools with which to work them.

I might almost venture to defend the proposition that learning is a medical and psychiatric process. A great body of work has been done from this approach to the enrichment of both psychiatry and education. I can refer you particularly to the work of Gesell of Yale on infant and child development and to the studies on Word Association Processes made at the Institute of Living of the Hartford Retreat. In this Conference you will undoubtedly have the psychology of learning and of reading discussed from many points of view — pedagogical, psychological, psychiatric. You will learn of the "normal" process of acquiring speech and reading, of the difficulties inherent in faulty perception. Perhaps the pathology of speech and reading abilities will be discussed.

I would like to direct your attention to the problem as seen from a slightly different angle. Perhaps we might call it a view of the end results of hearing defects and other sensory disorders. Civilization has not yet attained the "One World" of Wilkie's dream, but every human being must adjust to a fairly standard social pattern, or be rejected by his fellows. It is in the final analysis less important that certain persons cannot read or hear well than whether or not they can adjust. It is then more a matter of behavior than what has been learned. Now, if we take a group of subjects who have failed in making a social adjustment, we have one way of studying the actual importance of reading and hearing to success in life. Such a group may be found in the children who are brought before the Juvenile Court for various offenses — those commonly spoken of as "juvenile delinquents."

A study of the last one hundred cases of problem children studied in our clinic will serve to give some idea of the causes that are responsible for this most serious social disease of modern times. It is well known that the causes are multiple, and there is no one factor that is found in all cases. We are in the habit of specifying a "principal" cause and other "contributing" causes, but this is mostly a matter of opinion and subject to error. It might be better to report how often the different types of

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causes occur. Of the whole group, 64 were instances of primary Behavior Disorder, while 36 had some definite mental or physical disorder. According to the standard classifications, they would be divided as follows:

Primary behavior disorder	61)	
Educational disability	2)	Environmental
Social problem	1)	
Mental deficiency	25)	
Behavior disorder with physical disease	3)	
Epilepsy	3)	Pathological
Psychosis	3)	
Psychopathic personality	1)	
Homosexuality	1)	

The commonest etiological factor was the broken home, which existed in 57 cases. This is a minimum figure as it includes only those instances where one or both parents were out of the home during the child's early years. In an undetermined number of other cases, the home was broken in all but the strict meaning of the term. That is, the father was alcoholic, the parents were constantly quarrelling or repeatedly separating, both parents working, or similar conditions obtained.

A family history of mental or nervous disease was present in 40 cases, not a startling number, but certainly much greater than would be expected in an unselected group. The trend at present is toward the belief that heredity is of limited importance in these cases.

Some marked physical disease or defect was found in 46 cases. This figure also is conservative as only conditions that would have a real effect upon the child's adjustment were considered. These physical defects include:

Cerebral dysrhythmia	16	Syphilis	1
Defective hearing	11	Endocrinopathy	1
Obesity	5	Cryptorchidism	1
Defective vision	4	Tuberculosis	1
Underdevelopment	3	Deformity of jaw	1
Paralysis	2		

The first in numerical importance is cerebral dysrhythmia or abnormality of the electrical potential of the brain. This is a comparatively new development in the study of behavior disorders. It has been known since the pioneer work of Hans Berger in 1929 that the electroencephalographic record shows a characteristic pattern in cases of epilepsy, but it is only in the last few years that continued research has revealed a somewhat similar disturbance in many cases of delinquency. Those cases in which a disordered pattern of brain waves is found show many characteristics in common and have come to be recognized as a special type, which we speak of as "brain damage cases." Almost invariably we find in these cases a history of head injury or serious disease of the central nervous system in early childhood. The behavior of these children is erratic and unpredictable; they show a certain periodicity in the occurrence of their symptoms; no modification of their environment makes any difference in their reactions. They are often the despair of parents and teachers. In their

response to well meant efforts to help them conform, they act so perversely that they are often thought to be mentally ill. A typical history of such a case is that of R. P., born 1-5-26:

He was called to the attention of probation department at twelve years on complaint of a neighbor that he had taken mail from their mailbox. According to the parents he had been a problem since childhood because of "nervousness" and disobedience. At seven years, while at Pacific Military Academy, he ran away. He quarrelled with other children in the neighborhood, threw rocks at them, frequently struck other children without provocation. He teased dogs and, when about five or six years old, he drowned a cat in a laundry tub. He smeared paste and bananas on neighbors' porches. He annoyed neighbors by ringing door bells, taking jewelry from a neighbor's house, taking tickets from a street-car conductor. At school he had been a serious problem—throwing sand in other children's eyes, spitting at teachers and other pupils, biting a teacher's hand, filling his mouth with sand. When about nine years of age he stole, swore at teachers, was disobedient, rolled in the gutter and ate dirt, threw all manner of things at other children. Mother states he wet the bed regularly up to nine years and once in a while until twelve. He bit his nails, suffered from many bad dreams, and though generally clean in his habits, would roll in the mud or eat dirt in an effort to gain attention. Boy was privately placed at Pacific Lodge in February, 1938, but a month later was returned to court for malicious mischief and burglary. He was placed in a boarding home after a stay of about a month in Juvenile Hall, but in two weeks the boarding mother requested his removal, stating that he was "absolutely filthy, incorrigible, and could not be trusted out of sight." In September, 1938, he was placed by the father at St. John's Military Academy. He failed to adjust satisfactorily and was placed in a Ranch Home in Riverside County. He did fairly well there and in February, 1942, he was returned home. He was enrolled at Hamilton High School, but was soon in trouble there and was transferred to Riis High School. He was considered a "screwball" and "goofy" by the other students but gave no serious trouble though involved in a continuous array of petty disturbing incidents. In October, 1942, he was again before the court for theft of street-car tickets, using obscene language to neighbors, spilling gasoline in the street and setting fire to it, peeking in windows at night. He was expelled from Riis for inability to get on in a group of boys and thefts from school. In April, 1943, he was again arrested for threatening a woman, chasing her with a club, and telling her he was going to kill her. While in Juvenile Hall for the last time (4-20-'43 to 5-6-'43) he tried to escape several times, stole a set of keys. He threatened to kill one of the girls with a razor and was found to have a table knife in his pocket. Attempted suicide by hanging on two occasions. At another time he chased a nurse and threatened to choke her.

Our last information about this boy was contained in a letter from the American Red Cross in December, 1944, when he was in some sort of trouble in the United States Maritime Service.

The treatment of these cases is difficult because of the lack of psychiatric institutes for children. Obviously no treatment will undo a physical injury to the brain nor remove the scar. What we try to do is cure

the symptoms by appropriate medication and carry the patient through the critical period of adolescence until good adjustment has become a habit. Psychiatrists now have drugs which, either through their action on the cerebral cortex or the autonomic nervous system, can influence behavior in various ways. One drug can overcome the inferiority complex with all its resultant evils; another will control or modify the violence of temper outbursts; still others will curb impulsive behavior and increase self-control. Such a statement is, of course, somewhat over-simplified. Drugs alone are seldom of use in psychiatric cases, but must be used in conjunction with psychotherapy. And herein lies the reason for the difficulty in distinguishing between organic and psychogenic cases. In the case of R. P., for instance, the root cause of his poor adjustment was a head injury he received in an automobile accident at five years. Much of his later misbehavior resulted from faulty management of his early instability or from a certain satisfaction the boy received from the disturbances he created and the attention it gave him.

From the very number of cases represented, we must conclude that the presence of a hearing defect is of some significance as a cause of childhood maladjustment. The mechanism by which this is brought about is somewhat different from the type of cases we have been considering. True, in an occasional case, partial deafness, especially of the perceptive type, may be one symptom of central nervous system disease or injury. Involvement of the eighth cranial or auditory nerve does occur in tumor at the base of the brain or fracture of the petrous bone. It may be seen too in cases following meningitis and other generalized diseases. In most cases, however—incidentally in all the eleven cases here reported—maladjustment occurs not because of the hearing defect in itself, but because it is unrecognized by those about the patient. Partial deafness is notoriously difficult to detect without the use of special tests. You no doubt are aware that conductive deafness, the commonest form in children, usually begins with a loss in the high frequency tones. This loss gradually spreads downward until the speech range is involved. The progress is gradual so that the child himself is unaware of the change. If he thinks of it at all, he will believe that people are not speaking plainly. It cannot be repeated too often that it is not so much a loss of hearing as a dulling or blurring of the sounds heard. To make it still more difficult to detect, the acuity of the child's hearing will vary from time to time depending on the weather, the child's state of health, and other factors, so that he will hear very badly one day and quite well the next. If the disability is recognized early, it seldom leads to behavior disorders, although when it becomes very pronounced, it frequently produces a neurosis. A child whose hearing difficulty is not suspected will, however, be called inattentive, unfriendly, and even in many cases feeble-minded. It is easy to see why this is so. He often will not hear clearly what is said to him nor respond as quickly nor as accurately as he should. He cannot understand why he should be scolded or punished when he does not know what he has been told to do. Before long he becomes confused, self-conscious, and oversensitive. In the next stage, he either withdraws more and more from contact with others, or becomes a rebel against the society that fails to understand him. The treatment of these cases is, first of all, preventive

by discovering the defect in the early stages and bringing it to the attention of every one who has contact with the child. The only practical way of doing this is through routine audiometric tests of all children in their early school years. Testing of referred cases or those suspected of having a hearing loss is not enough. It is important, too, that this be an individual test and include all the common frequencies. Once the presence of a hearing defect has been discovered, further treatment becomes a joint medical and educational concern. Partial deafness in children is not the hopeless matter that it is commonly supposed to be. Much can be done to prevent further loss as well as to compensate for that which has already occurred.

Among the eleven cases in the present study is one which is so outstanding that I would like to tell you of it briefly. This is the case of M. D., born 4-6-30:

She was first known to the juvenile authorities of Los Angeles in May, 1944. Her mother said that she had been a problem since she was six years old. She had never been happy, although she had never been spanked nor punished severely. She did not do well in school because she didn't want to learn or was too dumb to learn. She fights with the other children; delights in making herself unpleasant. When the family eats out she picks at her food and says it isn't fit to eat. She lies a great deal and tells stories that embarrass the family. She says publicly that she loves Hitler and would like to live in Germany. When angry, she threatens to set fire to the trailer in which they live when the family is away. She steals any money that is left around, usually spending it to treat other children. The school reported that she cries often, seems to hate the other children, tells the teacher she wishes she had never been born. The teacher found her desk full of "crazy letters." She had no interest in school nor in play activities. She does not get along with the other students. Girl herself complained of the noise at home—there are six other children. She would like to have a place to live where there are no other children. She said she liked her mother but hated her father, speaking of him as a bum. She feels left out. Father has a favorite, mother has a favorite, and she has no place. Her moods were extreme. Some days she thinks only of pleasant things—swimming, going to the movies, riding horseback. Other days she was very unhappy, was convinced that she was crazy, and talked mostly of suicide. She came to Juvenile Hall in January, 1946, because of truancy, insubordination at school, and being a disturbing influence among the students because of talking of running away, discussing sex matters and murders frequently, and refusing to attend certain classes. She had become interested in men; the mother states "she allows the boys to paw her." School reports she is either a lone wolf among her mates or spends some effort at currying favors with them or creates situations to gain attention. She was accused of going out with truck drivers and being intimate with men, but physical examination showed no evidence of sex experience. Audiometric test showed 80% loss of hearing in one ear and 88% in the other.

There were, of course, a number of other factors present that had a part in causing this girl's maladjustment. There is little doubt, however, that this severe impairment of hearing was the most important. It seems almost unbelievable that this child's nearly total deafness could have gone

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unrecognized so long. During the two years since she was first known as a problem, various attempts were made to solve her difficulties, including study by a mental hygiene clinic. No mention is made in any part of her record, however, of the existence of a hearing defect. Recognition of her disability and compensation therefor is essential to successful adjustment.

One final cause, or perhaps I should say symptom of maladjustment in children deserves more than casual mention because of its frequency. This is the presence of a severe reading disability. A short time ago we made a study of 835 consecutive cases of school children who were given psychological tests at our Clinic. Only children who were attending school were included. Children were considered to have a reading disability who made a score of two years or more below their grade and capacity level. Children who failed the test because of a time limit or who were slow readers were not included. Results are shown in the following table:

I. Q. Range	Total number examined	Number with reading difficulty	Percent with reading difficulty
110-119	56	1	1.78
100-109	111	9	8.10
90-99	134	21	15.67
80-89	151	45	29.80
70-79	160	75	46.87
60-69	106	61	57.54
50-59	58	42	74.31
40-49	20	12	60.00
	835	266	31.80

It will be noted that the percentage of cases with reading difficulty increases as the I.Q. becomes lower. The mean I.Q. of Juvenile Hall children is within the dull normal range and 30% of this group had difficulty in reading. This group is recognized as being the most difficult to place for successful adjustment. In school placement we find these children too high in ability to be satisfied to follow the regular development room schedule and a little too low to compete successfully with children in the average classroom. Similar difficulty is found in making an adequate home placement for these children.

These findings indicate that many children who have difficulty in making an adequate social adjustment also have difficulty in adjusting to the school situation. Whether a reading difficulty is caused by bad behavior or vice versa is not determined from these figures. Probably each is true in some cases. Many questions suggested by this study must be left for others to answer. Is the educational system at fault? Does a proportionate number of children, who are not behavior problems, also show a reading disability? What, if any, is the influence of race and different types of culture? To the psychiatrist this is merely one of the problems that are brought out in the course of his investigations. In the same way, we frequently discover various physical disorders in the cases sent to us for psychiatric study. All of these must have some bearing on the prob-

lem with which we are directly concerned. It is the part of wisdom to deal with each defect that is discovered, for in a matter as complicated as human behavior, no man can say which shall prove to be the key to the situation.

NON-READING AS AN EXPRESSION OF RESISTANCE

By Pauline G. Vorhaus, M.A.,

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In discussing the problem of non-reading it seems important to start with a working definition involving an attitude and point of view.

There are two possible ways of defining non-reading. One is as an entity in itself—the other as a symptom which may arise from a diverse number of causes. This article is written from the second point of view, and therefore has as its premise the further idea that in order to understand and plan for any specific non-reader, it is necessary to investigate the dynamics which underlie his particular brand of non-reading.

The writer has been fortunate in having been associated for the past twelve months with a reading clinic in which this type of individual investigation followed by individual treatment planning is routine practice.* The extent and depth of the investigation depends on the results of a preliminary sifting out process in the course of which the children are separated into two main groups. The first group (which would naturally have a number of sub-divisions) has the one common factor that one specific and assignable cause seems to underlie the difficulty. Such varied etiologies as technical reading and/or studying difficulties; marked visual or hearing defects; mental retardation; and disabling health factors would all come under this classification.

The second group is composed of children whose difficulty cannot be accounted for in terms of any of these above mentioned factors, nor any other single or specific cause. In many instances one or more of these conditions may play a contributory part, — but even when all allowance is made for them — and for the emotional factors growing out of them — it still seems clear that some cause, over and above these conditions, must be operative to produce the situation. The writer has done most of her testing with this second group.

This article concerns itself with one large division within this second group (including more than one-third of the upwards of 100 children

*The Reading Clinic, Division of General Education, New York University.

studied). The following factors may be considered constant for the group under consideration: (1) They are all children of at least average intelligence, as measured by intelligence tests (the range being from average through very superior). (2) They are all non-psychotic—and none of the group suffer from organic limitations of their personality functioning (the range being from apparently adjusted through various types of emotional or neurotic disturbance); (3) They are all children who come from homes which may be described as economically secure—as distinct from under-privileged; (4) They are all children whose non-reading is a cause of concern to their parents; (5) They can all be classified in a sliding scale from reasonably "good" and obedient, to extremely tractable (inclined to submissive), as distinct from aggressive adaptations; (6) They are all—in varying degrees—lacking in spontaneity, enthusiasm and general outgoingness; (7) They all expend effort and energy on their work, appearing sufficiently cooperative and eager to learn that in each case it seems truer, at least at first glance, to say that in spite of sufficient intelligence the youngster is *unable* rather than *unwilling* to succeed.

Given this grouping of common factors, the possibility of a common genesis must sooner or later suggest itself. In the writer's case it happened "later"—after a large number of interviews with parents which at the time were like a blind summation, only later developing into a meaningful gestalt. Meanwhile during each interview there was a recurrent feeling of "having been here before" until gradually the awareness of repetition developed into a realization of an underlying pattern, accounting for this particular type of non-reading.

In order rightly to understand this group, the interplay between individual and environment must be borne in mind. This is not a reaction pattern produced by the child in isolation, nor is it a result of conditioning or specific situational factors. Rather it is an inter-relationship. It is the result of the child's interpretation of parental ideas and attitudes—an over-simplification which is essentially childish. If either the child or the environment were different it is the writer's belief that the resulting picture would be different. In other words, there was a configuration of circumstances, which collectively give rise to this symptom.

The dynamics appear to follow this general course:

The growing child is early aware that he is in a loving home to which he in turn responds by affection and outgoingness. But coincidentally with a recognition of acceptance comes an awareness of a need to "measure up"—an uneasy feeling that continued security will in some way be up to him—that after a certain preliminary period he must prove himself worthy if he is to be assured continued acceptance. In other words,

*The following tests were used in each case:

- 1) Both a verbal and performance intelligence scale (the particular test used depending on the age of the subject).
- 2) The Rorschach Test
- 3) The Thematic Apperception Test
- 4) A modification of the Goodenough Test

In all cases the test results were arrived at, and an interpretation made, without a knowledge of any specific facts of the child's history; an interview with the parents, centering around the interpretation and explanation of these results followed. Whenever indicated there was also a follow-up interview with the child.

he sees it as a conditional acceptance which depends on the degree to which he can fulfill expectations. Since it is a loving and a "good" home the child early identifies with it. Hostility and oppositionalism have no place in so favorable an environment. The child's aspirations therefore coincide with his parents. The home is not only ambitious for him—he approves the standards and to the best of his knowledge and belief wants to fit the pattern and play the expected role.

The trouble lies not with his conscious efforts, but with his unconscious resistance: (the fact that actually this resistance is often occasioned by a misunderstanding or misinterpretation of parental attitudes and their implications does not make the problem less acute, although it does point to hopeful prognosis once the situation has been understood and evaluated).

The resistance has its roots in the fact that the child—being a child—is inclined to over-simplification. "Good" becomes associated with everything that works for the attainment of the end and—by derivation—"bad" therefore is everything which is not directed to this end. Since the end sought may be defined as "growing to fit an expected pattern"—those drives and impulses and reactions which are not directed to this end become "*bad*" and hence to be repressed.

This dichotomous thinking creates a situation where growing-up becomes synonymous (in the child's mind) with fitting into a straight jacket, in the process of which he must relinquish all needs and interests extraneous to this rigid molding. Because he has developed patterns of submission the child valiantly takes the next step—he is prepared to make this sacrifice. But at this point the plan begins to miscarry—the way from here on is best likened to a constant obstacle race with each obstacle turning into a stumbling block. The reason, of course, is not hard for our more adult minds to grasp. Along with the repression described go apathy and listlessness. One cannot throw zest into one's efforts if they are directed towards the stifling of so much of oneself. Moreover, the interest is in "being good" not in the task for its own sake—two factors which reinforce one another—adding up to a picture of willingness but inability. Since this inability appears in a framework of good mental potentiality the distinction between "personality" and "intellectual" disability must be made.

In other words, the child is unable to read because reading is to him a symbolic step along a road which his own healthy impulse to maintain his integrity makes him reluctant to follow. Learning to read is synonymous with putting on the straight jacket. The explanation of why reading *is* this symbolic step seems to be in the cultural inter-relationship between academic success and prestige values. Clearly academic success is impossible without reading proficiency. The typical parent in this group tends from the outset, therefore, to attach importance to school attainment in general, and reading skill in particular. The child early senses this, and along with it the parental concern and anxiety associated with reading—and himself therefore accepts reading as a symbol.

It follows from the above that no remedial techniques (however flexible and subtle) can by themselves basically change the situation. So long as reading retains the symbolic meaning of a first voluntary

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step in the direction of growing up, and so long as growing up implies repression and joylessness, all that is spontaneous and natural in the child must rebel: (this rebellion is insidious in that it merely happens rather than that the child wills it to happen—that he cannot read, the conscious wish being allied with the environmental pressure).

As a pre-requisite to learning to read, therefore, the child must be helped to a better understanding of the growing-up process which will make it possible for him to substitute adjusted ways of fitting into his role for the repressive and destructive reactions which had led to frustration and failure.

Once this condition is fulfilled—particularly if the parents meanwhile have gained a degree of insight into the dynamics of this situation, a benign cycle has been set up which frequently quickly reverses the previous vicious one, the child responding readily to remedial techniques.

PSYCHODRAMA AND THERAPEUTIC MOTION PICTURES*

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SHAKESPEARE AND THE PSYCHODRAMA

The new concepts which the psychodrama has brought to the drama and the theatre can be strikingly illustrated by reflecting upon the attitude which Shakespeare, the dramatist of Hamlet, might have had if faced with a real test. Let us imagine him for a moment, sitting at the desk in his Stratford home, inspired by the story of Hamlet, the Prince of Denmark, which he found in a history book. He is brooding over it, making notes for a new play, of scenes and dialogues as they come to him. Suddenly he is interrupted by a knock. He opens the door, an unexpected visitor stands there.

THE STRANGER: Are you Shakespeare, Dr. Shakespeare? My name is Hamlet.

SHAKESPEARE: Hamlet, Prince of Denmark?

HAMLET: It is I. I am in great distress.

SHAKESPEARE: What has happened, Prince?

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HAMLET: I just walked by the palace. The moon was shining and I saw my dead father's face staring at me, as true and real as you are standing there. It spoke to me.

(For a moment Shakespeare does not know where to turn. He is, after all, the Shakespeare of the sixteenth century).

SHAKESPEARE: You may be the real Hamlet, but I do not need you. The play is practically written. I need an actor for the title role.

But let us imagine Shakespeare reborn at Stratford, in our time, sitting at his desk again. He stares at the stranger, drops the history book and throws his script away.

SHAKESPEARE: That is exciting.

He moves towards the man before him.

SHAKESPEARE: Pardon me if I touch you. It is you. You are real. He walks up and down and suddenly seizes Hamlet's arm.

SHAKESPEARE: Tell me, Hamlet, you saw your dead father with your own eyes?

HAMLET: Yes, Shakespeare, just before. It shook my mind and I am in great distress.

SHAKESPEARE: Was he standing on the ground?

HAMLET: No sir, he was posed in mid-air.

He moves to show him the spot. As Hamlet does so he realizes that Shakespeare's study is really a stage.

SHAKESPEARE: How did he look?

HAMLET: Bigger than I ever saw him, seven feet tall. And then he shrank and when I tried to touch him he was gone.

SHAKESPEARE: Did you speak to him?

HAMLET: No, he spoke to me twice. His voice was gentle at first, then it became like a warning. As I speak of him I feel that he is following me here.

SHAKESPEARE: See, Hamlet, we are not alone. Some of my friends are here, men and women.

HAMLET: My father pursues me again. Help me, Shakespeare.

SHAKESPEARE: I could help you better if I could see your father myself and talk to him as you have seen him and talked to him. Maybe some of the men who sit here can envision the part of your father.

An old man in the front row of seats moves up the three steps towards Hamlet.

SHAKESPEARE (to Hamlet): You tell him how your father looked and how he acted, where he stood and what he said.

HAMLET: I can't, it's impossible. It's so hard to remember. (Talking to the old man, an auxiliary ego): First he was kneeling, his head was bowed, like this.

Auxiliary ego watches Hamlet carefully. He tries to imitate him, he kneels and bows his head.

HAMLET: Not like that, man. My father bowed and he did not bow. He looked down and still he looked at me. You are a poor actor. (Hits him). Now I remember how it really happened. Get up, man, maybe another man can try.

Another auxiliary ego moves up to the stage.

HAMLET: As I was walking by the palace thinking of my mother's treachery I heard someone calling my name. He was sitting on a ladder.

The ego climbs up on a ladder.

HAMLET: On the top rung of it.

Ego moves to the top

HAMLET: It was leaning towards a column of the palace so that I could not see but the right side of his face. One eye was half closed.

Ego turns head away, eye half closed.

HAMLET: The moon was shining just above him. My father moved his lips as if he were trying to speak.

Ego moves his lips as if trying to speak, but unable to.

HAMLET: And then my father shouted "You are the King of Denmark," three times.

AUXILIARY EGO (raises his voice and shouts at Hamlet three times): You are the King of Denmark.

HAMLET (angry): His voice was not like that. It was gentle, but strong. It had power and majesty. I cannot bear it, please stop.

SHAKESPEARE: Oh, Hamlet, why don't you show me yourself how it was. You were there and you know your father so much better than these strangers do.

Hamlet takes the part of his father. He climbs up the column, his head rises over the palace and his voice begins to roar over the countryside.

HAMLET (as his father): You are the King of Denmark.

SHAKESPEARE: What is it? Why do you tremble, Hamlet?

HAMLET (as himself): I just heard my father's voice. It came from there.

SHAKESPEARE: From where?

Hamlet walks up to a higher level of the stage.

HAMLET: Here, in this corner, about eleven feet away from where I stood. It was like a whisper.

HAMLET (as his father, in a low voice): Call the people of Denmark to arms.

HAMLET (explaining): Then he turned around like this.

HAMLET (as his father, turns around, shakes his fist, knocks on the door of the palace): Call the people of Denmark to arms and kill the traitors.

SHAKESPEARE (interrupting): Is that what you want—to kill?

HAMLET (taken by surprise, dropping the mask of his father; as himself): Death to the new King and the new Queen.

HAMLET (again as himself, suddenly turns to Shakespeare): I want to see my mother. Bring her to me.

An ego comes upon the stage and acts the mother, Hamlet acts the role of Hamlet.

Scene between Hamlet's mother and Hamlet.

Then Hamlet asks for his stepfather, the new King. An ego takes his part.

Scene between the new King and Hamlet as his father.

Then Hamlet takes the role of his stepfather as he makes love to his mother.

Scene between Hamlet as the new King and the queen, Hamlet's mother. Then he asks for Ophelia. A young girl, an ego, takes her part.

Scene between Hamlet and Ophelia.

Thus, step by step, the psychodrama of Hamlet grows as if out of nothing, before our eyes. We see many versions of Hamlet and more than one Ophelia. However, the outstanding thing of this production is that we do not see Shakespeare, the playwright and producer who meets the actor and rehearses the role of Hamlet, but a real Hamlet meets a real Shakespeare. As the madman becomes real, Shakespeare too, has to remove his mask of the playwright and the private personality comes to the fore, a man with his own anguish and strivings, shortcomings and ambitions. It is a production of real people, real Shakespeares struggling with real Hamlets. And the egos who come to their rescue are not just actors, but friends and connoisseurs of Hamlet's world to which they try to give flesh.

At first glance it seems as if this were a new departure in the drama, a sort of synthesis between the theatre and the insane asylum, between drama and psychiatry, a sort of Shakespearean psychiatry. But on deeper consideration we find that it is not a new way of the drama, but rather a return to its status nascendi, the drama traced back to its primary source. Long before the playwright can write a "Hamlet" and a cast of actors entertain a crowd of theatregoers with it, there have been thousands of living Hamlets, Othellos and Macbeths. They came into the history books from life. And it is from the books that the dramatist took them. But the psychodramatist meets them *before* they come into the books. He meets the real Hamlet and the real Shakespeare, now and here, on the stage of the psychodrama.

THE THERAPEUTIC DRAMA

An analysis of the dramatic literature of all ages, radio scripts and films would show a division in several categories, the category of the entertaining drama, the category of the esthetic drama, and the category of the social, (religious, moral, educational) drama. But one category would be missing—at least in a pure form—the *therapeutic drama*. Psychotherapy as an exclusive aim of the drama has never been attempted. The literature carefully sieved, will show that fragments or even large parts of many dramas and films might be considered as therapeutic if they could be cut off from the rest. But tied up as they are with other parts they render the total picture doubtful therapeutically, if not confusing and anti-therapeutic. From this point of view even the best psychological dramas of Shakespeare, as Hamlet, Macbeth, Othello, would not stand up to psychodramatic requirements. The Shakespeares, Ibsens and Calderon de la Barcas can not be blamed for this shortcoming. Their plays have been written for purposes other than therapy, as for instance, esthetic appreciation or morale, which may provoke in the audience heroic and noble, as well as morbid, childish and anti-social attitudes. Thus the acid test of whether a dramatic work is therapeutic or not depends upon whether or not it is capable of producing catharsis in special types of audiences, or whether it is capable of warming up each member of the audience to a better understanding of himself, or a better integration of the culture in which he holds membership. In principle it is possible that a playwright may produce a drama

which unconsciously would meet cathartic aims. Except for such accidents, it stands to reason that the therapeutic drama form has to be cultivated consciously and systematically like any other form of art or science.

There is an argument which we must dispose of first, before elaborating on the idea of the therapeutic drama. That is, that good drama is entertaining, beautiful *and* therapeutic at the same time. If it is beautiful it must *eo ipso*, produce catharsis and what is fine and beautiful is always the best entertainment. Far be it from me to deny the great beauty there is in Othello, and that it has, in parts, the seed of great catharsis. But certain parts, as for instance, the scene where the colored Othello kills the white Desdemona, are bound to produce feelings in certain audiences which are the very opposite of catharsis. Obviously, what is true about as great a dramatist as Shakespeare, is much more true about the legion of mediocre playwrights, radio and film script writers. However, the regular production is not our concern, it should be left to its approved specialists. But a psychodramatist on the consulting board of film production agencies might render good service, especially to agencies which are engaged in the production of films for children and adolescents.

Therapeutic motion pictures,* film or television, the selection of conflicts, the construction of plots, the choice and training of cast, must be made in accord with psychodramatic principles. But the medium of the film adds factors which are absent in a psychodramatic session. The latter is a one-time event for a one-time audience. It aims to be of cathartic benefit to the actors and the audience alike. The therapeutic motion picture is a repeatable event and of cathartic benefit to an audience only. It is however able to appear simultaneously and successively before innumerable audiences. The focus of a psychodrama session is an immediate and singular audience—in the therapeutic motion picture attention is concentrated upon yet invisible, future audiences. The psychodramatic director works in continuous interaction with the audience, analyzing action not only as the stage production requires, but also as the rising and falling of the emotional atmosphere of the audience requires comment. Another technical difficulty arises from the medium itself. Only a few of the informal, spontaneous actions and interactions of the psychodrama lend themselves to photography. Inadequate picture-taking may easily turn the most spontaneous acting into a distorted and artificial portrayal. The psycho-technical problem is therefore how to produce a film so that it approximates as far as possible the atmosphere of spontaneous acting, and how to construct the film so that it gives the audience the illusion of direct communication with itself.

THE DRAMA-SITUATION AND THE ROLE-PROCESS

A drama setting can be a conventional theatre, a radio theatre audience, a film theatre audience, a television theatre audience, and last but not least, a theatre for psychodrama and spontaneity. It may be useful to repeat here the interpretation which the psychodramatic theory has given to theatrical experience. It views the total situation as a subjective-objective process. It does not overemphasize one phase of it, for instance, the experi-

*I suggest that we use for this new type of motion picture a special phrase—therapeutic motion picture, therapeutic film, or psychodramatic film.

ences of the spectator at the cost of another phase, for instance, the experience of the actor, the experience of one individual spectator at the cost of all other individual spectators composing an audience, the experience of one particular audience at the cost of other audiences, the experience of one individual actor at the cost of another individual actor, or all actors interacting in a production. It does not overemphasize the verbal process in a production at the cost of the action process. It does not overemphasize the role experience of the actor at the cost of the private experience he has had himself as a real person and it does not overemphasize the private, past experiences of a spectator as a real person at the cost of his experience as an audio-ego* living through the enfoldment of a dramatic production. It is obvious therefore, that it is not satisfactory to explain the highly involved process of the theatrical situation by unconscious identification. This oversimplifies that which is taking place to a degree which becomes misleading. The past and deeply subjective experiences of an individual spectator may exert an influence upon his attitude at the moment that he sits in the audience. But what happens to the subject as he *lives through* the drama passively and actively is better answered if we consider every spectator as an embryonic playwright and as an embryonic role-player and if we relate him to the objective structure of the theatrical situation to which he is exposed.

It has been one of the basic errors of psychoanalysis to draw from *one* situation, the psychoanalytic situation, conclusions in regard to *other* situations which, because of their different structure, require a different type of interpretation. The drama situation has a structure of its own. The structure of the setting has two sides. The one side is the production on the stage—whether a stage drama, a motion picture drama, or a radio drama—the production is an *objective* phenomenon, tangible and concrete (it is not the subjective incognitio mask of the psychoanalyst who is at times to a patient like the ink-blot of the Rorschach test). The *production consists of roles* borne by certain actors in a series of situations, of a plot which brings these role-carriers to conflicts and to their solution. (It is not just the enigmatic face of an analyst listening to a patient's complaints). *The audience egos*, or short the audio-egos, *react to roles*, to King Lear, Othello, Electra, or Hamlet, and to an actual setting into which all these roles are interwoven. An objective determination of what these role-materials are to which the audio-ego reacts, is easily possible. The written play, the film and the phonograph make them accessible. Because of this objective background the actual reaction of an audio-ego to these roles can be submitted to the following inquiry: how is it possible that a spectator who has never been a Hamlet, an Othello or a King Lear can relate himself to these roles, enjoy and profit from them? The first person who had to deal with Hamlet, Othello or King Lear as they appear on the stage, was their playwright, Shakespeare. How then was it possible for him, Shakespeare, to create a Hamlet or Othello without having been one in actual life? We know that he, by way of creativity, warmed up to these roles in a spontaneous creative fashion, using in the production every possible type of

*A term coined by Abraham L. Umansky, see "Psychodrama and the Audience," *Sociometry*, Volume VII, No. 2, 1944.

experience he can draw from, private, social as well as imagined elements, stirred up by the spontaneity factor. The results are super-real and even super-human roles, a cohesion, integration and unity of production which is hardly possible in real life. The very shortness of the drama, in one to two hours portraying the history of a person or of an entire nation, indicates by itself the *irreality* and the *ahistoric* character of the event. We know that it is impossible for an author to produce a Hamlet for instance, out of a private vacuum. He must have this role and any similar role in some *minimum* stage of development which he can blow up by means of the s. factor (the warming up process) to super-human magic proportions. The actors proceed similarly to the role-creator himself. They cannot reproduce roles which have never been in them as however remote an experience. They can react only to roles with which they themselves have been pregnant in a minimum state of development. But just as there is a *minimum productivity* of roles in an actor, there is a *minimum receptivity* of roles in a spectator. The playwright has worked these roles out far beyond the point to which they are developed in a spectator. He, the spectator could never have developed them by himself to the vision Shakespeare pictured on the stage, but he can easily warm up to the version of Hamlet or Othello offered by the playwright. In a spectator every role, private or collective, must have at least a minimum degree of development in order that he may have a perception for a parallel role process taking place on the stage. However, this embryonic experience in the spectator is wholly inferior to the super-human, integrated and gigantic expression to which he has been carried by the playwright and the actors. What powers enable him to jump to such heights with such little investment of his own to work with? One of these powers is the s. factor (spontaneity). The spectator undergoes a process of warming up, the production on the stage operating as a mental starter. There is sufficient of the role in him to accept this starter. The rapport is established, the rest he gives in to, like a follower to an authority, and the more increased his receptivity is, the easier it will be for the role to carry him from stage to stage until the climax is reached. It is obvious, however, that the greater the productivity in the role creating of a spectator is towards a version of his own, the less will be his receptivity to any version of the same role in the production, which does not coincide with his own trend of warming up. If this varying version of the same role presented before him on the stage tries to influence him to warm up into a direction which contradicts his own version, it may produce in him instead of catharsis, pain and resentment.

A spectator is capable of experiencing the role process on the stage because every role in him has two sides, a collective side and a private differential. A spectator watching a Chaplin film reacts therefore to the two portions of the role, the private person and the tramp. He may have a negative tele for the private Chaplin, a positive tele for the tramp, or he may have a positive tele for both portions of the role process. If the private life of an actor could be kept as stereotyped or as incognito as the life of the Japanese emperor, the private tele would be reduced to a minimum and the average theatre goer would know only the series of roles in which an actor takes part.

AUDIENCE REACTIONS

In the moment of presentation of a motion picture the production aspect of it is sealed forever. There is only one aspect which is human, changeable and in need of control, that is the audience. The audience is the patient. The study of audience reactions and audience constellations should therefore precede the production of pictures itself, as it is upon their requirements that the content of productions depends. There are significant differences between conventional theatre audiences, psychodramatic audiences, and motion picture audiences.

The audience attending a conventional drama and the audience attending a psychodrama have different attitudes. The audience attending a conventional drama, although it faces a human drama for the first time, is aware that it is up to every particle a created conserve. It expects to be entertained, moved and elevated by the drama and therefore rebukes severely any imperfection, lack of control, productivity, cohesiveness and balance of the actors which disturbs the smoothness and unity of the play. It comes to the theatre with the expectancy of a type of warming up process in the actor which is the characteristic demeanor of a cultured conserve. It has no expectancy for the emergence of the s. factor in the actor and the production. It considers, perhaps rightly, the s. factor, the ad-lib, as a faux pas or a trick, as *illegitimate* behavior and as disturbing his enjoyment. On the other hand, an audience attending a psychodrama has to develop a different attitude if it is to find any enjoyment at all. Whereas the conventional audience has a degree of s. expectancy which is zero, (we mean here the s. coming from the actor and the production on the stage in the moment of performance—it does not welcome the s. in the actor and in the play, as it might interfere with their own s. in the experiencing of the production) the psychodramatic audience must have some degree of s. expectancy and with it a high degree of tolerance for imperfections, inconsistencies, fragmentariness and imbalance in order truly to enjoy the performance. What they experience is more painful, more lifelike, more like themselves, harder to accept because it is not always a flight from the present, but deep penetration into its very essence, not only in content, but also in form and process. Therefore, just as the psychodramatic cast on the stage needs training, a psychodramatic audience too, needs training in the *perception of spontaneity* and s. appreciation, resulting in the saturation of audiences with the s. factor.

The average motion picture audience resembles in its attitude more nearly the conventional theatre audience than the audience of a psychodramatic session, (except of course that in the first situation only frozen images of people are seen, whereas in the second real people are acting). However, audiences attending therapeutic motion pictures must be developed more nearly after the pattern of psychodramatic audiences. The s. factor and the perception of s. must be stimulated and trained.

Although the adequate production of a therapeutic film is important it has to be realized that the main object of a therapeutic motion picture is not the production process but the treatment of audiences. The therapeutic value which it has for the patients helping in the production by having helped themselves, is small compared to the help which it should prove to millions of audio-egos. The audience is really the patient for

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whom the film is made, and the benefit it derives from it is the final test of the film's usefulness. It is here again that the psychodramatic method has gathered some knowledge of the audience constellations. In the conventional theatre and moving picture theatre the audience has a *laissez faire* form, everyone is welcome who can buy his way to a seat. But in the therapeutic theatre, just as a cast for production is essential—the audience itself *has to be cast*. The audience must be built at times homogeneously around certain mental syndromes, father-son conflicts, suicide conflicts, and so forth.

The new role of the audience in all psychodramatic procedures, whether applied to the theatre, film, radio or television, requires that the production should be carried out with a psychodramatic eye upon what a specific audience needs and what every audio-ego experiences in the course of the presentation of the film. It may be desirable from time to time to project the psycho-dramatic director, as he himself enters upon the stage and gives his comments in the interludes, if not in persona, at least as a voice, into the film picture itself. The voice of the psychodramatic director may therefore be interwoven into the total picture, the same way that he appears in a psychodramatic session, not only just commenting and analyzing and clarifying, but arousing to action, interrupting and ending, often using methods of aggression, commanding, taking upon himself several roles which form the background of the scenes themselves. It may be wiser to photograph him in crucial moments only so that his actions do not dominate the picture, since it should be dominated as much as possible by the actor-patients themselves. He should rather take the form of a therapeutic prompter, a counterpart of the playwright and producer of the conventional stage. Every therapeutic film should be tested and re-tested before special psychodramatic audiences, previous to being released to the general public of patients. Every therapeutic film, when released to the public, should be accompanied by a list of instructions for the medical director who is to present the film to an audience anywhere in the country. At present our aim should be to use therapeutic motion pictures as supplements to or starters of actual therapeutic sessions. The director should function as a sort of director of the audience, complementing the function of the director within the film, stopping the film whenever necessary, making explanatory remarks, relating it to the specific audience facing him and repeating parts as required. Such films can be used as opening up a psychodramatic session and warming up a given audience gradually, proceeding immediately afterwards with an actual session, or at least, with a discussion of the audience's own reactions. In cases where no other treatment but mass treatment is possible, therapeutic films of this kind can be shown, but always with a mental reservation that it is a flight in the dark.

PRODUCTION OF THERAPEUTIC FILMS

The idea of therapeutic motion pictures or therapeutic films struck me a few years ago. The experiment* taught me a few lessons which may be of some use in the preparation of similar experiments. It is necessary to

* A psychodramatic film was produced by the author in collaboration with Mr. S. Bates of Hudson, N. Y. The film was presented at the meeting of the American Psychiatric Association, in Washington, D. C., May 1935.

emphasize, first of all, that a good film producer with a brilliant script on hand and an excellent cast, is not able, by himself, to know how to produce a truly therapeutic motion picture. On the other hand, it must be recognized too, that a competent psychiatrist or psychoanalyst is not, by himself, able to know how to produce one which has value. It is a new medium, a new form and a new process. It has no semblance to the interview situation in a psychoanalytic office or in a psychiatric hospital. It has to consist of pictures: scenes of action, role developments, climaxes and anti-climaxes. The team of a good director with a good psychiatrist, each ignorant of the domain of the other is not a solution for this task. Each of them might bring "cliches" along, one from his experiences with filming, the other from his experiences with patients. By the same token conventional playwrights and actors should be kept out of a psychodramatic film studio. They are not only ignorant of our purpose but tempted to project cliches from previous productions into the new experiment. It is not sufficient that a film producer makes up his mind to produce a picture which has a good moral and therapeutic effect. There might be exceptions of course, but in general the productions turned out are bound to be full of flaws. On the other hand, it is not easy for a psychiatrist to translate mental syndromes into action form. He has to be a dramatist first. There is, as we know, a method of psychotherapy which has given specialized attention to this problem: the psychodrama.*

In the making of pictures a producer-psychodramatist should follow, at least in the beginning, closely the manner in which a psychodrama in the flesh is developed in a therapeutic theatre. He has to start with the premise that the therapeutic aim is primary and the medium, whether film or television, secondary. He is not to make any concessions to mere entertainment, film tricks, beautiful scenery and happy endings unless they are an integral part of the therapeutic development of the plot. He should learn his clinical psychodrama first, which will teach him that there is nothing more dangerous for the beginner than to copy the trappings of the conventional theatre and of the motion picture studio. He has to insist on the lessons which psychodramatic experience has taught to directors as well as audiences.

PRINCIPLES OF PSYCHODRAMATIC PRODUCTION

The most important task of production is the finding of a *therapeutic form* of drama which is clear-cut and can be shared by all psychodramatic motion pictures, a form which is just as consistent within itself as the esthetic drama or the cartoon. The producer—in his form-finding search—should be conscious of the factors which make a psychodramatic session therapeutic so that he should try to translate these factors into the film. There are three factors at work in every session: a) the action on the stage between patients and auxiliary egos; they influence in turn every member of the audience; b) the action in the audience; one audio-ego can be a therapeutic agent to every other audio-ego; as they are influenced by the action on the stage,

*The psychodramatic approach to motion pictures has been in the networks for several years, but experiments like "Lady in the Dark" or "Now Voyager" are not adequate try-outs. To the contrary, they are abhorrent examples of a form of the drama neither fish nor flesh, neither entertainment nor therapy, because they try to provide both.

they in turn, counter-influence the actor-patient and auxiliary egos during the stage process, in the pauses between scenes, immediately after each scene and at the end of the session, by their reactions; c) the director, he exerts his influence upon the actor-patients on the stage and the audio-egos in the audience, and last but not least, by his analysis and comments. If we would disregard these therapeutic influences the result would be that a therapeutic motion picture would appear as Hamlet does in a conventional theatre, or Charlie Chaplin's tramp in a motion picture theatre. Even if we would imagine them further adapted to therapeutic aims they would influence the audience by what we psychodramatists know as a mirror technique, which is fine, but only one of the techniques used in therapeutic drama. What we need is a Shakespeare who undergoes a creative revolution in relationship to himself and to his characters.

This brings us back to the view illustrated in the introduction. There are two Shakespeares and two Hamlets: the first Shakespeare has Hamlet as a figment of his imagination which he develops into a play to be presented before an audience at a time remote from the presentness of its creation. In this sense both Shakespeare and Hamlet are unreal. Then there is a second Shakespeare, the psychodramatic Shakespeare who meets the real Hamlet who, in turn, forces him to be real and personal himself. The latter production is in the moment and in the milieu in which they meet. Shakespeare is continuously present, he has not left the play a finished product to a producer and a cast. He is not there to make a play. His purpose is to help a poor, melancholy man. He works with Hamlet in the present. It is not a fictitious Hamlet, it is a real Hamlet, more real than the historical Hamlet. Shakespeare himself is real, more real than the historical Shakespeare, he is the playwright in his real creativity, not as a posthumous ghost, and applying his creativity to a real person. *This* Shakespeare connects one scene with another, Hamlet with Polonius and with Ophelia, with the Queen and the King, his uncle. We see *how* he connects them and how he disconnects them. He works *with* the audience, he stops and analyzes, meditates from step to step, connects the audience before him with the actions on the stage, with the plans in his own mind, with the plans in Ophelia's mind, in Hamlet's mind, in the minds of all the players, in the minds of every spectator. We learn how this Hamlet became a Hamlet and how this Shakespeare became a Shakespeare. It is easier for him, Hamlet, to become Shakespeare than for Shakespeare to become Hamlet. The psychodramatic process is a reversal of the normally dramatic. We, the spectators see how he might have become a Fortinbras. Every member of the audience may turn into a Hamlet, everyone may have his own version. But they are not only seeing a show, they are learning about themselves, about each other, and before the session ends a therapeutic way of learning has taken place which is not a dream-like experience, like the one which the conventional theatre offers, but one which is brought back and tied down to the intimate experiences of every individual spectator.

It would be a desideratum for the patient's reaction both on and off the stage, the director's reactions, the audience reactions, to be integrated into the motion picture. There will be many versions of Hamlet on the stage, they will vary with the individual patient and their problems, miles apart. There will also be many versions of a psychodramatic director, they will

vary with the personality equation of the individual acting. Every psychiatrist and psychoanalyst acts in a role natural to his personality. If we could photograph them in their behavior towards the patient we will see many versions of role-playing psychiatrists. We should not deny a therapeutic motion picture audience the beneficial influence of the role-playing psychiatric director himself.

For a long time to come, until we know more about therapeutic motion picture production, a knowledge which cannot be attained but by ingenious and analytic experimentation, psychodramatic sessions will remain unreplaceable as the final arbiters of treatment success.

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Division VII

Physiological Factors Affecting The Reading Process

The vitamin deficiencies may have, and quite often do have, a very real relationship to reading difficulties. . . . D, the sunshine vitamin, is perhaps of most importance to those interested in reading. If one asks a group of teachers what is the most frequently found difficulty in their room, the majority usually answer, "inattention," "poor concentration," "restlessness," or "excitability." Whether these characteristics are the result of the common procedure in modern schooling, of keeping the child indoors, away from direct sunlight, five or more hours of the day a great part of the year I cannot say, but there is a grave possibility that these difficulties are a just and annoying result of our restriction of sunshine exposure. D brings calcium-phosphorus utilization. Without such utilization any child is restless, easily distracted, over-tense, irritable and, usually, negative.

Florence Mateer, Ph.D.

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PHYSIOLOGICAL FACTORS AFFECTING THE READING PROCESS

INTRODUCTION

The physiological factors which affect the reading process have always been given a rank of importance in the Claremont Conference and Yearbooks. Experience shows that very often much pedagogical effort is expended trying to teach pupils who are physically incapable of accomplishing the tasks that are assigned. Dr. Mateer has established leadership in reading that type of difficulties. Those who have heard her lectures know how stimulating they are. Her account of "The Constitutional Bases of Alexia" presented in this section of the Yearbook provides much food for thought. Visual, aural, and endocrine factors are presented as dynamic aspects of reading.

Dr. Temple's discussion of "The Next Move for the Women of Science" reports and describes a phase of human reading which surely demands serious attention. Disease and its effect on human efficiency are matters which must be effectively read. The account of Health Study Club work in "primary" and "secondary" reading may suggest a wider use of such activities.

"That Man May See" and see efficiently without undue expenditure of energy is the hope of all students of vision. The dramatic account presented on the following pages is designed to point out how poor reading of printed words and concomitant maladjusted social behavior may result from vision difficulties. Vision education is an important part of a well conceived program of reading development.

THE CONSTITUTIONAL BASES OF ALEXIA

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The delimitation of such a discussion depends first of all upon a clear definition of what we mean by the topic itself. "Constitutional," according to Webster, means "Belonging to, or inherent in the constitution, or structure of body or mind." "Bases" is equally simple of understanding. "A basis is the foundation of anything: that on which a thing rests." When such foundations are atypical, inadequate, difficulties ensue. "Alexia," as we all know and as Gould's Medical Dictionary gives it, is an "inability to read." Webster simplifies the situation too far in this definition as he advises us that alexia is (a) "As used by some, inability to read aloud, due to brain

disease." (b) "More commonly, inability due to brain disease, to understand written or printed symbols although they can be seen, as in case of word blindness." Here we have a statement of a constitutional basis, which dictatorially excludes all that which recent research has learned concerning the multiple causes of alexia. Let us, instead of excluding them presumptuously, consider any condition that may be present within an individual's body, whose presence, directly or in marked indirection, affects his ability to comprehend the symbolism of the word-life around him.

Naturally, we mention such factors as blindness, or markedly poor vision, deafness of various serious degrees, and extreme mental defect as such handicaps. The development of special techniques have enabled the deaf and the blind to read but where the handicap is an extreme deficiency of the central nervous system, no method of reading can correct the problem. Only, if that were possible, the correction of the disturbance in the nervous system itself, could bring the desired mental process and all which that implies.

But the matter of picking out constitutional handicaps and determining whether they are irremedial or not, is not as easy as it may seem. Most constitutional deficiencies do not function independently in their effect upon an individual's intellectual behavior. The individual is rather like a union of many states with a bewildering interrelation of nutrition and function and feeling, with penalties and rewards more abstruse and distant than any as yet dreamed of in Washington or the UN.

One of the best group of illustrations of this lies in some of the more modern approaches to eye problems. Let us follow one or two of these a short distance. All of us are familiar with myopia and hypermetropia. Usually one refers the problem to the vision specialist. With lenses prescribed and worn, the question becomes one of how much correction has been obtained and whether it is enough to make response to ordinary school demands upon vision possible, and adequate learning resultant. Actually, the problem is far more involved. Myopia in a young child is not merely a refractive error. The young child is hypermetropic. He gradually becomes emmetropic, and myopia means that eye changes have passed beyond this normal shortening of the point of focus. This may be part of an early maturity, accompanying high intelligence. It may be a rather early stage of a deteriorative condition of the nervous system limited to vision, or a part of much more serious changes involving the whole body.

A myope of superior intelligence reads despite the myopia unless it be most extreme. The myope finds himself or herself handicapped at play and in games. He cannot see the ball in time to catch it. He rides a bike perilously for he cannot see the ground well enough to avoid bumps. He cannot find things readily for his vision is foggy save in a circumscribed area. As a result, reading opens the door to gymnastics and adventures in which his handicaps disappear. He can climb mountains, shoot tigers, trail the evildoers, with skill and superiority. His imagination develops with little handicap from reality (which he cannot see). He cannot be depended upon for report and is branded a story-teller. He is negligent because he has not seen. Reprimands, criticisms, failures drive him more and more into the world of books. As a result he is tending each day to an asocial solitariness, to introspection, daydreaming, resentment of the external world, and to fail-

ure in the larger world of reading, reading of the rules of normal living and sharing. In a way such children may easily become failures, emotional and social failures. Yet,—they are so valuable to humanity if understood!

On the other hand, the nearsighted child who is developing, or already has, a well-established central nervous system disturbance presents another extreme of social and educational responsibility. These children have no resources within themselves for any compensatory behavior. They sometimes are also colorblind or may become so. The fine details of even near objects blur. All visual effort is ineffectual and there gradually develops an extreme interest in the diminishing world of words and actions within a few feet of them. Such children, as I have learned to know them have usually been social, curious, immature, talkative, preoccupied with food and play.

Cathy was a typical child of this type. She was referred to me when not quite 11 years old. A clinic had examined her that morning, giving her a mental age of approximately 3 years. Institutional care was advised and she came to me only when that advice was turned down. She weighed 168 pounds, but was of normal height. She had to be helped, literally dragged, up the stairs to my office by two adults. A brief interview soon revealed the fact that she did nothing but sit in a chair or a swing at home. She was dressed, undressed, planned for in all ways. She did feed herself. She was a typical hypopituitary individual resembling most the group recognized as presenting the Lawrence-Biedl syndrome. Since defective vision is a part of this syndrome she was given further tests and soon showed that, with visual handicaps allowed for she scored about 5 years mentally.

Medication, corrective lenses, special education, family education brought gradual improvement. Her weight went up to 215 pounds before a gradual reduction brought it back to 165 where it has stayed for some years. Her mental level gradually improved until by 21 she was testing 10 years 3 months on the old Binet and 11 years 6 months on the L form. Motor presentation of many situations in miniature brought rapid gain in self-care. After two days of building block stairs and going up them with her fingers as feet she went up and down any stairs spontaneously. In a year she went to school alone on the streetcar. Her reading never got above fifth grade because even the large print of eye-saving texts were not large enough. Eleven changes of lenses gradually brought maximum efficiency of the vision she had. Today she and a sister run her father's home, she plays an excellent game of contract, helps direct her sister's children and their handling, enjoys shopping, chooses her own clothes with real discrimination, enjoys the radio and shows. The most significant value, perhaps, in this case was the effect it had upon the younger sister. She was seen within a short time after Cathy was first studied. There was nothing to indicate any disturbance at that time but the family was cautioned to let no disturbance which might develop go unattended. Consequently, when, at the age of 7, Milly was sent home as "Unable to learn, discharged from public school attendance," she was brought at once for further study. An early stage of degenerative pigmentation was found. Medication and ocular care were given. Placement in a sight-saving class was demanded and gotten and Milly finished grade and high-school uneventfully. Very few of the other symptoms of the syndrome have appeared.

Cathy we have never been able to correct fully. She first came to us

because the school repeatedly refused her attendance as unable to learn. But the non-reading which sent her to the other clinic was a minor part of a family tragedy. Vision was primarily at fault, but that in itself was the result of an unseen disturbance probably in the hypothalamic area. Its significance for the individual was immediate, for the family one of many angles, for the state relief from the expense of care for one, or perhaps two, individuals, for life.

The hypermetropic child may also have far more problems than those which glasses seem to solve. The young child, under six or so, is normally hypermetropic. If we find this condition persistent in the eight, nine, ten year old, what is the obvious inference? There may be other persistent immaturities besides that of eyes which have not developed to a normal condition. Such is often the case. The child may be immature mentally, emotionally infantile, small, dependent, not ready for the social, intellectual or physical demands usually made upon one of his age. This condition itself, not purely the visual factor is a poor basis for school success. Its cause? Shock, long illnesses, malnutrition over a prolonged period, hypothyroidism, hypopituitarism, or any combination of these and many other factors.

This is far from an enumeration of all the major patterns through which eye difficulties affect reading. The birth injury child who sees but cannot read; those who fixate but cannot maintain coordination long enough to read even with vision training; the loss of perspective in a child with only one eye or a case of occluding internal strabismus; the panic and fear of a small child with nystagmus, are all handicaps which prove real barriers to any academic demands, yet we need to search beyond the immediate and obvious eye involvement for the larger pattern of basic difficulty.

Auditory difficulties are almost as manifold as visual problems. The most frequently overlooked is a partial aphonia in which the child hears sound, responds with speech but where he actually is so immature in his auditory comprehension that school success is impossible. For example, at present we are working with a 13 year old little girl who failed first grade four years before we saw her. In the three years since then she has covered three grades of work, so far as visual learning goes. She is socially able to manage her own trips about town and handles money well. She can get her own lunch or dinner if necessary. She earns money taking care of babies. But—on orally given directions she scores about $6\frac{1}{2}$ years. The basic cause—hypopituitarism, corrected very slowly but steadily.

The vitamin deficiencies may have, and quite often do have, a very real relationship to reading difficulties. Vitamin A deficiency of marked degree causes night blindness and a blurring of vision in bright daylight. The discrimination of words and letter forms is almost impossible in an extreme case, yet adequate A replacement eliminates the problem, which no amount of eye-shading or special lenses can correct.

Vitamin B has often been called the morale vitamin. Adequate B will, in properly diagnosed cases, make all the difference between lack of interest, desire, and effort in the learning situation, and adequate success. We still know too little to identify this clinically but the results are obvious when it is used.

D, the sunshine vitamin, is perhaps of most importance to those interested in reading. If one asks a group of teachers what is the most

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frequently found difficulty in their room the majority usually answer, "Inattention," "Poor concentration," "Restlessness," or "Excitability." Whether these characteristics are the result of the common procedure in modern schooling, of keeping the child indoors, away from direct sunlight, five or more hours of the day a great part of the year I cannot say, but there is a grave possibility that these difficulties are a just and annoying result of our restriction of sunshine exposure. D brings calcium-phosphorus utilization. Without such utilization any child is restless, easily distracted, over-tense, irritable and, usually, negative.

The reading of such children is no more irregular than their other abilities. They do not attend long enough to learn a thing well but are torn, by the stimulus of each and everything in their environment, from any one interest, only to be precipitated into another.

For some such children more sunshine is all that is required. For others additional vitamin D is essential. For others the use of parathyroid, which functions in the utilization of calcium, is necessary. In other words, the basic factor may be a deprivation, a deficiency, a function of glandular deficiency.

The calcium-deficient child is just another stage of this picture, needing more calcium rather than D, or perhaps D with it. There are also children whose calcium intake and D supply are adequate but in whom the phosphorus supply is abnormal. This creates an even more marked disturbance of learning.

All in all there are nine possible relationships of calcium and phosphorus supply in the blood stream. Either may be too abundant, too scarce, or normal in quantity but only one of the nine resulting combinations, that is a normal amount of both, is without disastrous effect upon the learning behavior of any individual.

Last September we had a child of just seven come to us from a consolidated school district not far away. They had tried a whole year to adjust him to first grade work. He showed persistent behavior problems and practically no learning. His mental level was slightly above average, his family cooperative and intelligent. His home environment was excellent. The inability to stick to anything evidenced itself when he was seen three weeks before school opened. A blood calcium revealed less than 50% of the normal amount. His physician immediately started corrective measures. The first two weeks of school he was still somewhat of a problem but five weeks after starting correction he had stabilized to the point of being able to give good interest and cooperation throughout the school program. He reentered public school in January, more than up with first graders, and has finished the year's work nicely. His mental gain in the year has been tremendous and I am sure the whole change is not due to the mere fact that he is a year older. We accomplish the same miracle too often.

But close as may be the relationship of hypocalcemia, hypophosphorus, hypo-parathyroidism and C vitamin deficiency, the matter is even much more involved than that. One of the functions of the pituitary body is to accelerate bone growth, hence calcium utilization. As a result we may find these symptoms of calcium disturbance present in a child who is handicapped by low pituitary function. The clinical picture then becomes even more complex. There are two groups of disturbances which pituitary

deficiencies cause that handicap reading very definitely, and in some instances there are many subsidiary deficiencies. The main two are immaturity of motor coordination and a persistent tendency to inversions. A child who has poor coordination has too many eye-movements to read smoothly, he misses lines, he focuses hither and yon over the chart, the board, the diagram, the workbook. The child who has the inversion tendencies, mirror writes, or inverts letters, inverts letter orders, inverts word orders, transposes syllables, reads right hand pages before left, and even inverts processes and rule applications.

Reading, to such a pituitary deficient, is a maze of hazards to be met by guessing, false starts, repetitions, and imagination. Yet medication systematically carried out brings all save the most extreme cases to adequate concepts of reading and a practical utilization of them in one to three years.

Unfortunately, the achievement of complete correction in such cases is not easy. To begin with medication is a very involved matter. Medical products are still not far beyond the experimental stage and not all physicians are possessed of that flair which gives the optimal dose to the individual even if he varies from the textbook norm. Nor do these cases come strictly isolated, with only one group of symptoms per individual. They show all types of complexity and variation from the norm. Only prolonged following of many children shows the trends, still not final, not perfect, which corrective work is taking.

Pituitary disturbances are of many types, some far more responsive to treatment and reeducation than others. Of course there are many individuals suffering from a pituitary disturbance who show no variation from normal function in spite of it, although one cannot help wondering how much more competent they may be once therapy is taking effect.

Herman is a child who never learned to read. At the age of 12 he was placed in a special resident school and had persistent drill and teaching. In 18 months he had not even learned the first 20 words of the basic primer. He then, 13 years 6 months of age, was started on pituitary. In four months he had covered all the basic first half year work of public school, read intelligently, showed extreme interest, and worked persistently. He has completed a year's work in a little less than seven months and shows no sign of a lessening rate of learning. His mental level is almost ten, 14 months gain in the seven months, and the change in his behavior is such as to prove the gain is real. But we may not infer from his gain that other children will do as well. Many do, some do not. Intelligence level is only relatively an indication of probable success. Many lower IQ children gain amazingly and their IQ's change proportionately. Medication plus education enables them to see what they did not see, speak where they had remained silent, and to grow into greater maturity with increased impetus. Each needs his own chance.

It is necessary to remember, however, that gain may not be measured from one individual to another without many reserves. There are many types of pituitary deficiency. There are many degrees of difficulty in each type. Correction depends upon the type, the degree of involvement, the age, sex, and intelligence of the child; the environmental stimulation, the parental cooperation, the adequacy of corrective educational methods, and, upon the absence of other, uncorrected, handicaps.

Unfortunately for scientific information one holds the child above the findings and in cases where there are a number of factors that all seem to bear upon reading or its negation, one does not stop to find out the value of each factor by itself but plans a program that will take care of all of them as completely as possible.

Many of our pituitary deficient cases are also thyroid deficient. This makes a more involved problem for tutor and family. The thyroid deficient may usually be detected by the poor retention of things learned. He seems to do pretty well day by day but when the demand for material learned several days before comes, he is patently lacking in that knowledge. Examinations are tragedies, and formulae, rules, and other exact learning are usually absolutely impossible. The hypothyroid often starts well in the fall but gradually falls more and more behind the group. Sometimes he is a slow learner needing many repetitions. Sometimes he learns normally but lets it all slip away within a few hours.

When the inversions and motor deficiencies of the pituitary case are complicated by the poor memory and other handicaps of the hypothyroid, the matter of motivating a more normal ability to learn, to read, is a matter of individual determination, many cases being far slower than one would expect while others are far more rapid in response to changed conditions in themselves. Prognosis is a matter of one's own experience and wise is he who does not hesitate to admit that he does not always know.

Peter is a typical illustration of this mixed type. He first came to me just after the end of his sixth year in school. He was a non-reader. He could write his name and 2 words, *the* and *her*, but he could not read them when written. He could do practically nothing in arithmetic although he read his numbers to ten, sometimes confusing 6 and 9.

He was 12 years 3 months of age, and tested 9 years 4 months on the Binet, L Form. He had good motor coordination, but showed inversions in drawings and speech. His memory was adequate to ten years. On performance tests he scored to adult level in everything save the Healy Pictorial Completion #1 whereon he scored barely 9 years. This is often a relatively low test ability in alexia cases.

He was thin, round-shouldered, hesitating on most new issues, apprehensive but cooperative.

His family had done two excellent things. He had been kept in school and had his friends and group play. Also, he liked music and had been taught properly to play several band instruments.

Peter was started that fall on corrective work of all types. Thyroid, pituitary, new glasses, corrective reading of a combined word, thought, sentence, phonic method, with many small practical reading demands, as well as more rest, education towards drinking more milk, etc., were all initiated.

He covered nearly three grades of work the first year, gained well in weight, learned to go places alone since he could read streetcar signs. He kept up his music.

The following year his work brought accuracy through fifth grade, and another year brought sixth and seventh grade accomplishment. The following year he went to Trade School part time, continuing corrective English, Social Science and other reading at Merryheart.

This year he is at Trade School whole time. He can read for all practical purposes. He drives a car and is the most trusted boy for business contacts at the Trade School. He has continued his work with drums until he can add a nice increment to his income playing for dances, etc. He has a regular job and has had for three years and more. During the scanty labor period before D-Day he earned well over a hundred a month after school hours. He is earning a little less now but with much easier work. He has responsibility for money, written records, and for supervising other boys of his own age.

Socially he has developed in an equally satisfactory fashion. His standards are high, his religion is an evident part of his everyday life.

Peter will never be a rapid reader. His future lies in the world of real things. He is still in school and will be for another year at least.

His gain has not been a chance setting of the plan and letting him go ahead. He has needed medical readjustment, repeated eye examinations and changes of lenses, individual tutoring, and the common sense supervision in a full life that all adolescents need. War and illness have both touched the family and he has met those problems adequately. Careful guidance now is bringing him perspective in fields in which he can be a successful, social adult.

So far as his reading problem goes, he will undoubtedly continue gaining ability as long as his normal interest in the world around him continues but correction is now a matter of his own aggressive handling of everyday situations.

This boy typifies an important item in the process of reading correction. Reading gain is most rapid at first and then becomes a matter of continuing incentive, adjusting demands so that success is possible without too heavy a literacy demand, with enough self-knowledge so that the individual himself takes over the handling of his weak attribute and maintains normal living with that knowledge. One can seldom say that reading correction of any marked degree is corrected in a year. Cases must be followed, readjustments in the various therapies must be made, some one must continue to handle the critical appraisal of the individual's success. No one can really say that reading correction is complete until the individual has maintained his own competency for a year and more.

There are other newer fields of constitutional variations which affect reading in some children, at least.

In the child who can learn and who learns to read under teacher demand but who never takes any personal responsibility for his work we are finding that suprarrenal cortex or, in more extreme cases, cortisorbate, brings the desired change in attitude and initiative. In adolescent girls where there just seems to be some blur between reading, acquiescence, learning and being able to grasp the *concepts* underlying the given work, gonadal stimulation seems to be the answer in those cases we have followed long enough to be sure the gain is real.

Prostigmin bromide is giving as miraculous help as has been claimed for it on the few cases we have so far started and followed, although no one can so far say whether such help is permanent any more than permanency can be claimed in any corrected case until time elapses in sufficient length to bring certainty.

In the meantime our procedure must be the cautious, adaptive use of all aids which promise to make life easier for even a minority group of children, with ever-widening application of techniques so learned and with emphasis upon the use of all phases of possible aid, — medical, social, economic, educational, religious and psychological.

THE NEXT MOVE FOR THE WOMEN OF SCIENCE

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The world has known many great women of science. In the science of medicine, women have taken the lead in some revolutionary processes as exemplified by:—

Lady Montagu of England who, as early as 1717, introduced into Western civilization the practice of inoculation against smallpox which preceded Jenner's work on vaccination by 57 years.

Florence Nightingale, who, though born to wealth and ease, poured out the major part of her 90 years of life to make hospitals sanitary and nursing humane.

Madam Curie, who gave her life to give to the world radium which has meant life to hundreds of thousands.

These are examples of what we might call the such-obvious-cases of a woman's contribution to medicine that the world could not deny her the honor. There are probably thousands of instances in which a woman has been the unsung heroine, while all of the applause has gone to some man in medicine. For instance, on the tombstone of Dr. William Withering is engraved a foxglove, the symbol of digitalis, and humanity honors him as the person who gave digitalis, the great heart medicine, to the world. But few know that there was an old woman of Shropshire where Dr. Withering was born in 1762, who spent her nights over her kettles brewing a concoction of 20 herbs with which she cured cases of dropsy, where even the ablest physicians had failed. Few know that it was only after a good deal of begging and persuading by Dr. Withering that this brilliant old woman finally surrendered to him a handful of her precious herbs among which he found the foxglove which yielded his digitalis.

These women of science with the men of science have provided means for liberating the human race from the curse of many diseases and disease processes. Science knows well how either to prevent or to find and wipe

out smallpox, diphtheria, gonorrhea, tuberculosis and certain other communicable diseases and yet these diseases march on.

Los Angeles records of 1944 show 19,000 casualties from 4 of these preventable diseases—319 cases of diphtheria with 23 deaths, when New York City had only 6 deaths—18,000 reported cases of venereal disease—966 deaths from tuberculosis—and all citizens not successfully vaccinated within the past 2 years, threatened with smallpox, which has the same death dealing power in the dark ages when it depopulated whole cities and wiped out entire tribes.

Why is it that when science has marvelous new medicine to cure or arrest and wipe out syphilis and gonorrhea, that based on reported cases the city of Los Angeles reports the venereal disease attack rate in the 15 to 19 age group has increased 120 per cent since 1939; and recently, Los Angeles has had a more than 50 per cent increase in the syphilis rate in infants under 1 year of age? Why is it that in Los Angeles the "Captain of Disease" slays little babies with diphtheria when science has measures to prevent this disease, — measures which are available to the poorest of the poor children?

Science has known exactly how to prevent smallpox for 150 years and yet in 1944, California residents died of this malady disease. And in 1945, tens of thousands of men, women, and children in Los Angeles County have not been successfully vaccinated within the past 3 years and are therefore threatened with this disease which has caused and can again cause more deaths in a single epidemic than the atomic bomb has to its credit!

It is infinitely less costly to eradicate disease than to tolerate it!

The professional division of America's Great Health Army is well trained by long years of study and practice in expensive hospitals, schools of medicine, nursing, social work, etc. And these professional troupes are prepared and equipped with known scientific measures to wipe out preventable diseases. Why then is it that in this age of scientific knowledge and facilities these preventable diseases march on and on and on? What has *Science* missed?

There is one answer. The members of the people's division of our country's Great Health Army are untaught and untrained. In their confusion and ignorance they take sides as allies of the enemy-disease. Day by day and night by night the people harbor and nourish within their bodies the enemy's germs—and spread them from one individual to another individual and from one group to another group.

The people's treason in the war to death between man and disease is all the more horrible because it leads a husband to take the enemy's microbes and visit death upon a wife whom he loves. It leads a mother to harbor within her body the horrible germs of syphilis and infect and kill her own unborn child.

The trained professional is out-numbered and out-maneuvered by legions of untrained people who work with the enemy.

Serious days lie ahead for our country. Dr. Thomas Parran, Surgeon General of the United States Public Health Service, tells us that only by a miracle did the United States escape deaths from a mighty epidemic during World War II. He warns that more dangerous months and years now face us with health restraints and the curbs which war imposed removed, the

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enormous special federal war time appropriations discontinued, and the effective assistance to civilian health services by military and naval health departments decreased.

27,000,000 Americans, exclusive of military personnel, have migrated during the war—nearly one-fifth of the total population. Disease travels as people travel, and in 1945, that is with startling rapidity. A plane can easily cross the ocean within the incubation period of disease. In addition to our present home problems, from across the sea new health hazards face us as more than 250,000 service men return to Los Angeles. There were 262,037 cases of smallpox in India in 1944; 143,546 cases of smallpox in India January-April, 1945 and the annual incidence of smallpox in Mexico our next door neighbor is 2,000. We are warned that since the onset of war, virulent type of diphtheria has increased in Europe many fold. Stowman estimates over 1,000,000 cases have occurred outside Russia. Germany is no longer isolated from us by a barrier of steel. Thousands of soldiers will return from contact with prisoners from that country. It will be somewhat surprising, Stowman states, if some of them do not bring strains of this highly virulent diphtheria to our shores.

Professional personnel shortage presents another angle of the problem. In July 1945, one-fourth of the established state and local Health Department positions were vacant. Dr. Parran tells us not to expect relief here because as local health agencies expand their programs these vacancies will be multiplied many times. Lt. Colonel Michael Debakey in the October 6, 1945, Journal of the American Medical Association, states that "the medical resources of the country are simply not adequate to meet the demands for medical care as they at present exist. The supply of physicians is not great enough numerically. The inadequacy of the national medical resources which became so acutely evident during the war is by no means a temporary phenomenon. It is a chronic problem. As a matter-of-fact the unfortunate policy of Selective Service in the last years of the war in refusing to defer prospective medical students will result for some years to come in a decrease in the usual annual increment of physicians."

A critical professional personnel shortage exists and will continue for indefinite years.

But the people are plentiful. Science must find a way to use them. These millions of people who now spread germs but can spread health, are the greatest unused health resource of our generation. With training the people's division united with professionals will turn the tide of battle and win the health war.

Professionals' work can never substitute for the peoples' part in *prevention* early diagnosis and the seeking of early cure. The woman alone, is the first to know when that irregularity occurs which is the most usual initial sign of early pregnancy. Her intelligent cooperation is vital if she secures the early treatment demanded to wipe out prenatal syphilis. Only the man, when it first starts, is conscious of his tired feeling, which may mean tuberculosis, not beyond the stage when diagnosis will save him and protect others.

The other day a woman came to Southeast Clinic and stated that she had been having trouble with her eyes for months. She had used eye washes, bought several pairs of Kress's glasses, but her vision steadily decreased.

One look through the ophthalmoscope into the eye ball showed a large segment of optic atrophy caused by syphilis. Within a stone's throw almost of the clinic, with medicine which could have treated her syphilis early and prevented her loss of vision, this woman had become almost totally and hopelessly blind.

A few weeks ago, an expectant mother, dangerously near term, came to my office. Through the routine blood test program of the South District Community Health Association, I found that she had syphilis and should have been treated before the 5th month of expectance. In ignorance she had wasted her golden opportunity to have treatment to assure a healthy baby. And she is pitifully anxious for a child. So long as people do not know they will continue to spread communicable diseases, they will continue to die of neglected tuberculosis and 60,000 babies will be born each year in our country with congenital syphilis.

If the objective is treatment of terminal symptoms only no training is needed. Painful late symptoms drive patients to seek care after their chances for cure have passed up many.

The Community Health Association, a grass roots organization born in the Southeast but which now has interested members throughout our Country senses keenly that if preventable diseases are to be rooted out and the goal of good health reached, all of the people must be informed and trained to do their parts and to use facilities which science has made available. To help train the people, the Community Health Association has set up a plan called the Health Study Club plan which embraces the idea of a school of Health in which a new science is taught, a science so simple as to be almost scorned—the homely science which comprehends the joy of achievement under handicaps and consists of helping the masses to use what they have at hand even while they strive for what they need. The science of influencing the people to use the marvelous freely available agents vaccination to prevent smallpox, immunization to prevent diphtheria, blood test, chest x-rays and other examinations to find syphilis, gonorrhea, and tuberculosis; and to employ the wonderful new remedies which public health has provided for treatment and eradication of these diseases by the Associations plan.

Underprivileged men and women and little children are taught in simple language that the "Primary Disease Factors" are the disease germs which are spread from person to person and from group to group by the people themselves. That the primary "Health Factors" or "Anti-Disease Factors" are (1) Health Education, (2) Health Examination and (3) Adequate Treatment; and that to wipe out disease and to gain health, these three anti-disease factors must be received, used and spread from person to person and from group to group. Health Study Club groups seek to have members go all of the way in the health-learning and the health-action necessary to wipe out the five diseases—smallpox, diphtheria, syphilis, gonorrhea, and tuberculosis and as many others as possible. And then each original member is encouraged to go out and reach, teach, and lead five of his neighbors and friends to follow through with the anti-disease measures of Health Education, Health Examination, and Adequate Treatment. The aim is to develop a repeated process of group reaching, teaching, leading, a continuous chain of contacts spreading anti-disease factors to others and still others,

until the entire community is reached and taught and led to carry out those measures which mean life to people through the sure death of preventable diseases.

This new science, by its simple Health Study Clubs of demonstration and contagious example, has converted men, women, and youth in the underprivileged groups who could barely read or write from discouraged disease-spreaders to proud citizens who carry good health factors.

This is well illustrated by the woman who, a few months ago, came to her second Health Study Club wearing coveralls. She was given the most hearty welcome, and no one appeared to notice her lack of even an elementary education. On the first day, she was given a job as usher. The doctor saw she could hardly read, and instead of the usual request, suggested that for this lady's work assignment that she should have at least five persons read to her the Health Study Club's first pamphlet. She was pleased, but had to hurry away to the factory. A few weeks later she came to the club "all dressed up" and said, "Yes, this is me" — "I told my boss I had to get my day off changed so that I could stay to my Club. So now, I can come early and stay as long as I want to." This woman is now a committee chairman and a few weeks ago brought five people in for health education and to take blood tests and vaccination. Her face beams. She feels a part of the health building program and the Health Study Club has given her a cause to live for.

The program reaches out to street urchins and privileged boys and attracts them both. One day Mrs. Johnson of the Association was working at the office when someone touched her arm. She looked into the brown face and intelligent eyes of a little Central Avenue newsboy. He said, "I didn't see the Health Information Center sign which you usually put outside. You don't need to be afraid to put it out, ain't nobody going to steal it, 'cause I watch it everyday."

The Association's program is the children's program. They love it and feel a citizen's responsibility for developing it.

The work, even limited because of meager funds, is a powerful case finding and disease prevention and eradicating measure.

Last Thursday, a man chanced to drop in to the Association's Health Information Center and the Nurse by much effort persuaded him to take a blood test. Yesterday that test came back positive for syphilis.

Very early, high infectious cases of syphilis have been picked up through our Health Information Center and gotten under prompt treatment, thus preventing potential infection to great numbers.

One of our Health Study Club girls asked a friend to come in for a routine blood test. The girl came. The blood test was positive. The subsequent spinal fluid examination was positive for syphilis of the central nervous system which eventually leads to complete paralysis and hopeless insanity and costs approximately \$10,000 in state care. This ordinary Central Avenue area Health Study Club member has done this wonderful thing of getting this girl examined and under treatment before any symptoms of mental or muscular changes have developed, and while she has an excellent chance for complete cure. This one case alone is worth much more than the entire program has thus far cost.

The South District Community Health Association's program presents

a thorough, fundamental method of organizing the masses and through them carrying health education and health help to millions. One high school girl reached and influenced more than 300 to take blood tests and helped organize a Health Study Club of 117 which is actively working and has already reached out to others.

Disease Prevention Week inaugurated by the Community Health Association stimulated the entire county toward Disease Prevention procedures. The Association's printed pamphlets and its initiation of Disease Prevention Week programs in all city and some county schools helped the Association to reach at least 375,000 pupils and many of their families, with disease prevention messages which have stimulated many to be vaccinated—chest-x-rayed and blood tested.

The Community Health Association is a non-profit, voluntary organization dependent entirely upon voluntary contributions for its work. Only God knows what the carrying of this program thus far has cost those who have pioneered in this work. It has meant all we had or could earn in money for a period of years. It has meant 12 to 20 hours of toil days without end. But God has given strength for this job which must be done and in this warfare in which there is no release until the program is solidly set-up, we must go forward!!

The Community Health Association has to date had little in funds and has necessarily worked on a very small scale. But its demonstrations have been so encouraging that local health officers and other authorities have expressed the belief that if sufficient funds can be secured for the development and expansion of the Health Study Club plan, that a three-year demonstration can be made which will do a tremendous amount toward disease eradication in Los Angeles County and serve as a model for the communities of our country.

Compared with the continuous suffering and colossal cost from disease it is relatively easy and economical to wipe out these five diseases and other preventable ones. Thus, we relieve the underprivileged from the suffering and release the privileged from the financial cost and the constant threat of a major, deadly, rapidly spreading epidemic which will affect all homes in all county areas.

Other countries have pointed the way. Scandinavia made syphilis a rare disease; Montreal after 4,000 cases of smallpox and 3,000 deaths within a few weeks, vaccinated all citizens and vanquished this disease. Toronto, Canada, wiped out diphtheria and closed its diphtheria wards.

If in Los Angeles County there are a few privileged women who have enlightened self interest, who have the far-sighted vision and faith of Madam Curie, who, like Florence Nightingale, can feel with the masses of the underprivileged and will put personal ease aside, join the Health Study Club and translate that feeling into persistent, selfless action—these training schools will be developed, the untrained disease-spreading masses will be converted into triumphant health carriers who influence their contacts to use the accessible health facilities which science has provided; and we, the women of this generation, can write a new chapter in disease eradication and human betterment.

THAT MAN MAY SEE

A DRAMATIC PRESENTATION OF VISION EDUCATION

Peter L. Spencer, Ph.D.

Professor of Education, Claremont Graduate School

This play takes place in the office of the principal of an elementary school. The school staff has come to the conclusion that one of the children, Mary Zaner, is having to work too hard to achieve even average success with her work. They have come to suspect that she has a vision handicap which is partially to blame for her difficulty. The play describes how the home was contacted and convinced that a thorough vision examination was needed, and how the vision training and corrective glasses affected Mary's work.

* * *

Scene 1 (seeking light), reports the meeting of the school principal and the mother of Mary Zaner. As the scene opens, the principal is seated at his desk working.

SECRETARY—Mrs. Zaner is here for her appointment.

PRINCIPAL—Very well. Show her in. (Enter secretary with Mrs. Zaner.)

SECRETARY—Mr. Young, may I present Mrs. Zaner, Mary Zaner's mother.

PRINCIPAL—I am pleased to meet you, Mrs. Zaner. We are always glad to have parents call.

MRS. ZANER—I am pleased to meet you, Mr. Young. I've come to you for information.

PRINCIPAL—That is fine. What can we do to help you?

MRS. ZANER—Well, I have a note which came from your office and which says that my daughter's eyes are bad. It asks us to have her eyes examined. We don't see why we should go to that expense when Mary had a physical examination just before school opened this fall. The doctor said there is nothing wrong with her and that she has perfect eyes. Mary never complains of her eyes. We want to cooperate with the school but we don't care to throw our money around needlessly. Why have you asked that we have her eyes examined?

PRINCIPAL—I am glad that you have come to see me about this, Mrs. Zaner.

We want you to understand what the school is doing for the welfare of its pupils. Mary is doing passing work in her studies and she is cooperative and congenial in her relations with her teachers. However, we have observed her rather carefully and we have given her a number of tests for different purposes. As a result, we have come to think that Mary may have a visual handicap which makes her use more energy than she should in order to accomplish what she gets done. The act of seeing consumes energy just as do the acts of walking, talking, jumping, or any other types of physical work. If Mary uses more energy than is necessary to see she becomes tired and her ability to learn is impeded.

MRS. ZANER—Yes, I know. That sounds reasonable, but she doesn't complain of her eyes and the doctor said they are perfect.

PRINCIPAL—You are quite right, Mrs. Zaner. However, we are not talking about Mary's eyes, as such. We are concerned with her *seeing*. Very likely she has good eyes, just as she probably has good hands, and good feet. But merely having good hands was not enough to make Mary play the violin as she does. You provided her with special teachers to teach her how to use her hands and arms to make the violin sound properly. No comparable instruction has been given Mary to assure that she has learned how to use her eyes efficiently. Efficient seeing must be learned. There is no question but that Mary sees. However, there is a question whether she *sees efficiently*. There was no question whether she could use her hands to hold a violin and a violin bow, but that didn't insure her being able to produce good violin music.

MRS. ZANER—I never heard of such a thing! No one ever taught me to see! And furthermore, I don't know anybody who ever took lessons in seeing. Is this some more of that 'Progressive Education' nonsense which we hear so much about? Frankly, Mr. Zaner and I think that it would be a lot better if the school put more emphasis on *good teaching* and left the care of the children to their parents. We are interested in Mary's health and her well being and we'll take care of them, but we haven't the time or the 'know-how' to teach her the things that we pay taxes to have taught by the schools.

PRINCIPAL—I see your point, Mrs. Zaner, and I appreciate your expressing it so frankly. The school has no wish to interfere with the parents' privilege and responsibility for their children's welfare. However, in order that the school may teach effectively those things which have been assigned to it, we must be concerned to see that pupils are properly equipped to learn. Suppose we look at some of the reports concerning Mary to see whether we can find a fair reason for the school's suspecting that she may have a vision handicap.

MRS. ZANER—All right! I'd like to see them.

PRINCIPAL—This is a file of records and reports concerning Mary. Here is a profile of her standing on a comprehensive examination in the subjects. Her record is slightly above the average expectancy for her grade. However, there are some interesting variations in her accomplishments. She scores very high with arithmetic and with language usage. She makes somewhat poorer showings with history and geography. Her scores on reading show that she reads very slowly as compared with the expected rate for her grade, but that she understands and recalls very well what she reads. We suspect that there is a relationship between her slowness in reading and the fact that she does not do so well with subjects like history and geography as she does with arithmetic and language usage.

MRS. ZANER—I don't believe that is the case. Her father and I both read slowly. There is a lot to be said for being slow but sure. Too many people are reading so fast these days that they don't really know what they have read after they have read it. I think it is perfectly natural for Mary

to be a slow reader. If she knows what she has read after she has read it, her father and I will be satisfied.

PRINCIPAL—You have a point there, Mrs. Zaner. But like other points it doesn't quite cover the whole issue. We agree that speed without comprehension isn't desirable but school assignments are made with the idea that a certain amount of material will be read and understood within a given period of time. One who reads at half the expected rate will cover only half the material in the time allotted, or if the whole assignment is covered the reader will use twice the expected time. But that isn't the whole story. Sometimes the slowness isn't closely related to the task of comprehension. We have seen that many who read slowly with good comprehension retain their ability to understand when their rate of reading is greatly increased. Obviously, when that is accomplished, the student can learn more and with less expenditure of effort.

MRS. ZANER—Yes. I see that. But you say Mary is doing satisfactory work. She reads slowly, but she gets her work done. The doctor says there is nothing wrong with her eyes. So! Why should we have her eyes examined?

PRINCIPAL—The doctor is probably correct, as far as his statement goes. There may be nothing wrong with Mary's eyes. In fact it would be surprising if there were anything wrong with them. It is not disease or bad structure that we have in mind. We are concerned with the way in which the eyes are used or rather we are concerned with the *efficiency of seeing*. How well does Mary see?

MRS. ZANER—I'm sure I don't know. But I think I am beginning to understand what you have been saying. Maybe Mary does not use her eyes effectively.

PRINCIPAL—That is partly the point we have been studying. Here is a record of observations which Mary's teacher made. It says, "Mary Z. seems to become tired after only brief periods of book reading. She seems to have difficulty with concentrating on reading printed material. She frowns as she reads, but I rarely notice a frown at other times. For several days she has been holding her head in one hand. I noticed she held her hand so that she covered her left eye. She says that holding her head 'rests her'."

MRS. ZANER—Why she has always done that! Even when she was a small baby she used to turn her head so she was looking directly with her right eye only. She often puts her hand over her left eye because she says she doesn't "want to see so much." We never thought of that as anything wrong. We thought that it was just a mannerism which she had picked up.

PRINCIPAL—Now that is very interesting, because Miss Jones, Mary's teacher, gave Mary a vision examination last week which seems to indicate that Mary may have a real difficulty with getting her two eyes to work together. With all the tests which measured the use of one eye, Mary did very well. But, with almost all of the tests which required the two eyes to work together she gave consistent evidence of effort and her responses lacked in stability. You can see, I feel sure, that if these acts take extra time and extra energy to perform, Mary is being handicapped in her work.

She has to work too hard and she doesn't accomplish enough for the energy and time expended. That is why we suggest that she be given a thorough vision examination. It is not because her "eyes are bad" as you expressed it, but it is because we believe that we have reason to suspect that Mary has never learned how to see efficiently. She may not have "perfect eyes" as you were told, but what she has are certainly good enough. But her eyes do not do the seeing. They merely *help* Mary to see. If she doesn't use them well, perhaps that can be corrected. Then she should learn more and with less effort and she should have time to do some other things which Mary needs to do.

MRS. ZANER—I really want to thank you for being patient with me and for telling me these things. Frankly, I had no idea that a school would take so much interest in its pupils or that school teachers had the "know how" to make such careful studies. You may be certain that Mary will have the examination, but that isn't enough. Do you know that many and perhaps most of the patrons feel toward the school the way I did when I came here today?

PRINCIPAL—Yes, we know it. We have tried to establish a better understanding but, so far, it hasn't worked very well.

MRS. ZANER—Do you know what! If you can show the others what you have just shown me the parents will be for this school one hundred per cent. Will you talk to a group of parents about this if I get them together and bring them here?

PRINCIPAL—Certainly I will! But why don't you have Mary's examination first. We may learn something from that which will add interest and point to the discussion.

MRS. ZANER—That's an idea! Thank you very much. I shall get in touch with you later about the meeting. Good-bye. (Exit Mrs. Z.)

Curtain

Scene 2. (The light dawns)

The scene takes place in the principal's office about one month after scene one. Mary Zaner has had a vision examination and has taken a series of orthoptic treatments under the direction of a vision specialist. Mrs. Zaner has arranged for a group of parents to meet with the principal to learn about vision education and how it may help with school achievement. The principal is seated at his desk as the scene opens.

SECRETARY—Mrs. Zaner and the ladies from the parent organizations are here to see you.

PRINCIPAL—Very well! Show them in. (Enter secretary with group.)

SECRETARY—Mr. Young, this is Mrs. Zaner and the group from the PTA.

May I present Mrs. Hall, president of the Roosevelt School Parents group; Mrs. Barnes, president of the Lincoln School group. You know Mrs. Crouch, from our school. Miss White met the ladies before they came in.

PRINCIPAL—We are pleased to have you visit us. Mrs. Crouch knows that this school is here to serve you in any way possible. I have asked Miss White, our counsellor-psychologist, to join us because much of the program we are to discuss lies within her field of interest.

MRS. ZANER—Mr. Young, I have told these ladies about my first visit here when I came to find out why the school wanted my daughter, Mary, to have a vision examination. They would like to hear you say the things you told me and what resulted when the examination was made.

PRINCIPAL—We shall be glad to do that. I'll ask Miss White to tell you what the school does to look after the pupils' vision. But before she does so, I'd like to mention some of the ideas that are basic to our work.

MRS. HALL—I have been told that the schools are not permitted to do anything about eye troubles. Is that true?

PRINCIPAL—There is a degree of truth in what you have heard. Teachers and even school nurses are not equipped or licensed to treat diseases of the eyes or to prescribe glasses. Such things are rightfully restricted to the services of professions which specialize in their treatment. However, the schools have as large a place in vision education as does any other service.

MRS. BARNES—I notice that you say "vision education" instead of "visual education." Is there a difference between them?

MRS. ZANER—May I try to answer that, Mr. Young?

PRINCIPAL—Certainly, Mrs. Zaner, I wish you would.

MRS. ZANER—When I came to school about Mary's examination, I was confused with those terms, just as you are, Mrs. Barnes. But the past few weeks have shown me how the two programs differ.

MRS. BARNES—Well, how do they differ?

MRS. ZANER—Visual education refers to things like the use of movies to help with teaching. It really refers to the *use of sight* to secure an education. But vision education is something new. It refers to procedures and ways by which we learn how to see efficiently. Am I correct, Mr. Young?

PRINCIPAL—Yes, Mrs. Zaner. That is a good statement of the difference.

MRS. CROUCH—But do we really have to learn to see! I don't remember when I didn't see!

PRINCIPAL—The point is that we need to learn how to see *efficiently*, Mrs. Crouch. Sight is a natural process but we have to learn what to see and how to see it efficiently. You learned to do that largely by yourself, just as others throughout the ages have done. But studies have shown that our seeing can be greatly improved by our learning more efficient ways of seeing than those which most of us hit upon by ourselves.

MRS. ZANER—You mentioned that you wished to tell us some ideas which are basic to the work in vision education. What are they?

PRINCIPAL—We have been discussing some of them. I wanted first to point out that vision education refers to the development of the vision sense, and to its care and effective use. Hence the older term, visual education, is much less inclusive and refers really only to a limited part of the larger field. Another thing that I wanted to say is that we now believe that good vision is a development rather than a gift. We are born with a vision sense, but it isn't worth much unless and until we learn to use it properly. A third point which we feel that we must stress is that seeing uses energy. Most people who think they see well are really using much more energy than is needed to do their seeing. And finally, different ways of seeing are required for different types of visual tasks. The seeing which is most effective on the playground is not like the seeing which must be used with textbooks. The way we see pictures differs substantially from the way we see printed words. Hence it is important that as teachers and parents we observe rather carefully any evidences of inefficient seeing which the children's behavior may reveal. That brings us to the procedure which I have asked Miss White to describe and explain.

MISS WHITE—Teachers have observed that many children have difficulty in using their vision effectively. For a long time little was done about it, because there was the belief that people are born with "good eyes" or with "weak eyes" and all the school could do was to utilize what the pupil possesses. But when we came to recognize that good vision has to be achieved through learning, the whole picture changed. Now we have two new things to keep in mind. We must observe pupils for what may be evidences of poor seeing and we must conduct instruction in such manner that good vision is developed. It was these matters which caused us to ask that Mary Zaner's vision be examined and which in turn led to her being treated and relieved of her disability.

MRS. ZANER—Mr. Zaner and I will forever be grateful that we were fortunate enough to have our child in a school that takes such care of its pupils.

MISS WHITE—Our teachers regularly look for any evidence of difficulty or strain. Hence it was to be expected that Mary's teacher would notice that Mary gave evidence of fatigue after only brief periods of book reading, and that she seemed to have difficulty in concentrating on that type of visual tasks. Those observations, of course, led to a more detailed study of Mary's work to see whether any particular subjects seemed to be affected.

MRS. HALL—What sort of study was made to determine that?

MISS WHITE—For one thing we looked at her record on a standard achievement test. Mary is in the fifth grade. Her scores are well above that grade expectancy in arithmetic and in language usage. She made about an average showing in history and geography. But her score for reading rate is very slow. She comprehends well but she reads very slowly. Dr. Helen Robinson of the Orthogenic School at the University of Chicago has pointed out that whenever a student is very good in arithmetic but has difficulty with printed-word reading we should suspect a vision difficulty.

MRS. BARNES—Is that because reading arithmetic material takes a different kind of reading from that used with literature, for example?

MISS WHITE—That is possible. We know the types of reading differ. But they both require the use of the eyes. Now the teachers watched Mary even more carefully and they noted that she held her hand over her left eye as she tried to rest her head. All of these things led us to give her a vision test before the time when we had planned to give the test in her room.

MRS. CROUCH—What sort of test did you give?

MISS WHITE—First we gave the Snellen Test Chart which is a test that has been used in schools for many years. It measures the sight of each eye at a distance of twenty feet. According to that test Mary sees at twenty feet what people normally would have to be at fifteen feet to see, if Mary uses her right eye. Her left eye did not see so well. But its sight was normal. These results seemed to indicate that Mary's trouble, if it was visual, would likely be in her use of the two eyes together. That can not be measured with the Snellen Test. Consequently, we used a battery of tests which measure several types of visual tasks.

The battery measures two-eyed as well as one-eyed seeing. It is interesting to note that Mary shows difficulty with every two-eyed test except that which measures the vertical coordination of the two eyes. The first test shows that she tends to suppress her left eye. When it finally came into action the two eyes were not well coordinated. The second test measures whether one eye operates above or below the other or whether they work on the same level. The result indicates that they see at the same level. The third test measures the convergence of the eyes as they see at a distance. The score shows that the eyes tend to diverge, i. e., they do not turn sufficiently toward each other. This tendency has been shown to produce extra effort to see well and to tend to prolong the time required for seeing. The fourth test is a measure of one's ability to make a single image from the images of the two eyes. At first Mary failed to see the target in front of her left eye. When she finally saw it she was unable to fuse it with the image produced through her right eye. The next test is somewhat similar in function to that of the Snellen Test Chart. It measures ability to see a dot of standard size to simulate seeing at increasing distance. Mary saw with "100 per cent efficiency" as indicated by the score card. This was with two eyes. The next test is similar except the test target is before the left eye only. Mary, at first, was unable to see the dots, i. e., she suppressed the image of her left eye. When she did see the dots she was able to identify the targets only to "90 per cent efficiency." However, by working with her we got her to see at "100 per cent," but because of the help given that was not acceptable for the test. The next test was the same except that the target was then in front of the right eye. Mary saw it easily and read with no hesitation to "105 per cent efficiency" according to the score card. These results bear out the suspicion that Mary is having difficulty with two-eyed seeing, but that either of her eyes is a good seeing instrument when working alone. The next four tests measure the presence or absence of astigmatism as the patient sees at the far or at the near point. They gave no indication that Mary has any considerable amount of that condition.

The next test is like a previous one except that this measurement is made at the book-reading distance. Mary shows a strong tendency to over-converge under these conditions. You may recall that she did not converge enough when this test was applied at far point seeing. The next test showed that she has difficulty with fusing the images of her two eyes at the near point just as she had difficulty at the far point seeing. This is also registered in the result of the next test which measures the ability to sense depth or stereopsis. The final test is a measure of color discrimination. Mary showed no difficulty with it.

In general the results confirm the teachers' observations that Mary is experiencing difficulty with seeing. If she could not fuse the images of her two eyes readily, she would use considerable time and effort in seeing the printed words. Her seeing is made easier when she uses only one eye. That explains her use of the hand to "rest the head" which actually served to cover one eye. Consequently, we concluded that Mary should have a thorough examination to determine whether she might not be helped to see more easily and thereby be equipped to learn more readily.

This has been rather a long discussion. It represents what we are trying to do in the observation of every pupil in order that we may help them to understand themselves better and that they may learn how to do their tasks with ease and efficiency. I hope you have not been bored.

MRS. HALL—We most certainly have not been bored. But that looks like a very complete vision test to me. Do you need any further tests to find what is the matter with a pupil's seeing?

PRINCIPAL—Yes we do. These tests confirm the observation that something is wrong but they are not sufficiently exacting to show specifically what is the nature of the difficulty. The people who specialize in vision testing and vision treatment make more exacting measurements. However, for the most part they are similar to those which Miss White has described.

MRS. BARNES—What sort of tests were used to find out what was wrong with Mary Zaner's vision?

PRINCIPAL—I have gone over the procedure with the vision specialist who made the examination and who is conducting her vision training program. He told me that he found the results of the school's observations to be very useful. From them he knew where the difficulty would most likely lie. Consequently, he conducted his examination with that in mind. First, he examined the eyes to see whether there was any evidence of pathology. Since none was found, he then looked for a difficulty with the functions. The eyes are suspended in a muscle pattern which the seer must learn to control. The specialist tested Mary's ability to control her eye-movements. He discovered that when she rotated her eyes, they did not move in a smooth rotary movement but that there was a tendency to move them in a jerky irregular manner. Similarly, when she was tested for her ability to maintain coordination of the two eyes when only one eye is stimulated, he found that the unstimulated eye "trails off" or loses fixation. Moving the eyes along a line of print calls for some very exacting controls. Pictures were taken which show that Mary did not make those movements well. She tended to have difficulty in making the two eyes work together.

She made many corrective movements. Her fixations were long and during the fixation periods the eyes tended to move aside which would interfere with the clearness of the seeing. These characteristics are closely related to the slow reading rate which was disclosed by the school's records. Further study disclosed that Mary had difficulty with adapting her seeing when changing from far to near fixations, such as would be required when changing from seeing the blackboard to looking at a book.

MRS. CROUCH—How could all of those things be wrong and yet have Mrs. Zaner be told that her daughter's eyes are "perfect."

PRINCIPAL—Of course, the statement that "the eyes are perfect" does not mean that they are *used effectively*. The difficulties which we have been discussing are not difficulties that are inherent with the eyes. They are merely deficiencies in the *use of the eyes*.

MRS. HALL—You mean that Mary had not learned to use her eyes well?

PRINCIPAL—That is partly what we mean, but we must not confuse eyes with the act of seeing. There is more to vision than just a pair of eyes.

MRS. BARNES—Well, what can be done about such things? Will glasses correct them?

PRINCIPAL—We are told that glasses are helpful in many instances, but that they are not the whole story. There is a great deal to the education of the visual sense. In Mary's case the specialist prescribed a pair of glasses to assist her with her near seeing tasks. He, however, did more than that. Mary has taken and is still taking some systematic work in what is called "Vision Training."

MRS. CROUCH—What is that? What does she do?

MRS. ZANER—First she was made to rotate her eyes following a target fixed on a disk. When she could make smoother movements of that kind, she was given some tasks with a machine which had targets moving in front of each eye. As the machine worked the targets came closer together or went farther apart. She was asked to keep the two images fused as long as she could. She used a hand stereoscope with pictures which were made to give her practice with fusing under different conditions. She read materials which were flashed very rapidly on a screen. She even read with a metronome beating to try to make her see more quickly. Many things of that kind were used in her re-education of her seeing.

MRS. CROUCH—Can the schools do anything about such training programs?

PRINCIPAL—The schools have a great part in the vision education work.

Some schools are using the tachistoscope very effectively in developing abilities to read printed words and to spell. Some have used a machine called the "Metronoscope" to increase the speed of reading recognition for printed words. Many have used the hand stereoscopes, but perhaps not as effectively as they will in the future. All schools can be careful of light. In like manner, all schools can be careful that the posture of the pupils is conducive to good sight and to good seeing. We can be conscious of the efforts which

pupils make to see well, and we can adapt our instruction to aid in the production of good seeing rather than just assuming that because pupils have eyes they also see effectively.

MRS. HALL—We must make reports to our parent groups about our visit here. May I review my impressions to see whether they correctly reflect what you have told us? First, having good eyes may not ensure having good vision. Second, teachers constantly observe pupils to determine possible sources of difficulty which the pupils may be experiencing. Third, it is necessary to learn to see properly, just as it is necessary to learn to speak, to eat, or to breathe properly. Fourth, these things and more are included under this new term, Vision Education.

PRINCIPAL—Those are correct conclusions. We are very anxious to have them understood, because we have found that far more of the educational difficulties than was previously suspected are of a visual nature. Mary Zaner is not an exceptional case. She happened to have parents who were interested in helping her in every possible way. There are many such vision cases within the school, but not all of the parents have been as cooperative as have the Zaners. We are happy to report that since Mary has been supplied with glasses and since she has taken the vision training work, she no longer shows the symptoms which gave the teachers such concern. Her school work has improved greatly. She accomplishes her work with much less effort than formerly. She has developed a new personality, which is making her much better liked by her classmates. We are going to pay more attention to Vision Education in the future.

MRS. ZANER—Thank you very much, Mr. Young, for giving us this time.

Mr. Zaner and I want to do everything we can to help the school do its work well. We appreciate so very much what has been done for Mary and we want the other parents to know how carefully the schools care for the children. May we call on you again if we find that we need help in reporting this to the parent groups?

PRINCIPAL—You certainly may and thank you all for coming. We particularly want to thank you, Mrs. Zaner, for going to the trouble of arranging this meeting. Please come again, whenever you feel that we can be of service. Good-day to you all.

Curtain

Division VIII

Curricular Problems In Reading

How may the secondary student learn to read life and read it richly? All about him lie the means by which he can become great: hills, waterfalls, rocks, clouds, trees, flowers, animals, machines, airplanes; black, white, yellow people; sad people, happy people; starving people, well-fed people; murder, sin, death, meannesses, and a thousand mediocrities, deeds of nobility, kindness and generosity. Can a high school student read life accurately by himself, as it spreads out before him? Can he, by himself, ascertain truths that will aid him to live happily? . . .

Bernice Carpenter

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CURRICULAR PROBLEMS IN READING

INTRODUCTION

The organization and implementation of the experiences which constitute a program for the development of reading abilities are ever critical matters in education. Much of instruction is based upon textbooks, hence the effective use of books is a problem of constant concern. Under the broad conception of the nature of the reading process, all things which affect us must be read. There is, of course, the perennial question—shall we be satisfied with a so-called "vicarious" approach by means of books or shall we strive to do a large amount of "direct" experiencing.

Miss Carpenter raises the question, "How may the secondary student learn to read life and read it richly?" Her answer to the problem is straight forward, clear, and supported by reasonable evidence. Here is a teacher of literature who really teaches pupils "to read life and to read it richly."

With slightly different emphasis but substantially similar material Miss Houx presents the use of literature in "Building Understandings in the American Way of Life."

Dr. Dolch, who is well known for his work with the teaching of printed word reading, contributes in his discussion of "Reading Pictures" some pointed thoughts on that application of reading. He concludes that "a major neglect in our educational system is neglecting to teach the reading of pictures."

We all know that the armed forces made much use of picture reading. Mr. Davis was very active in the teaching phases of the army's training film division. He tells how the films were made and how they were used in the armed services program.

Mrs. Porterfield in her presentation of the "Educational Services Enlarged Through Reading" reports a classroom teacher's experiences in applying a broader conception of reading. The teacher's learning to read the students and the students' learning to read themselves and each other is recounted in stimulating style.

READING CAN BRING RICHES

*Bernice Carpenter—Teacher
Bonita Union High School,
San Dimas, California*

How may the secondary student learn to read life and read it richly? All about him lie the means by which he can become great: hills, waterfalls, rocks, clouds, trees, flowers, animals, machines, airplanes; black, white, yellow people; sad people, happy people; starving people, well-fed people; murder, sin, death, meannesses and a thousand mediocrities, deeds of nobility,

kindness and generosity. Can a high school student read life accurately by himself, as it spreads out before him? Can he, by himself, ascertain truths that will aid him to live happily? No, he needs help from every possible source, so that his life forces may not be too easily dissipated by the trial and error method. In this article, there can be space to consider only what the teacher of literature in the secondary level can do to develop attitudes that will lead students into constructive living.

What characteristics does the average parent or citizen of a community want a high school graduate to possess? Let us listen to a group of parents as they speak.

"We want our boys and girls to live harmoniously with all types of people in the community and the world. We want them to be courteous, refined and honest. We want them to use the scientific experimental approach to all their problems. We want them to have a normal attitude toward abnormalities and an intelligent attitude toward vital life functions: marriage, birth, growth, death. They must be able to do a specific job well, so that they may make money enough to live well. We want them to be religious enough to have a central core of belief that will shape their attitudes and give a purpose to all living, so that when tragedies come they may have 'staying' ability, a sane rather than a neurotic approach to living. We want them to view life as a whole, to see the whole 'proud pageant of man' from the beginning of time up through to-day and to-morrow. We want them to have a vision, a dream of the heights to which man can climb in the future. We want our children to know the hearts of the people in this age-old pageant, know their emotions, know each person's gift to history in each age and something of each person's faithfulness or faithlessness to that gift. We want our sons and daughters to fit themselves into this pageant of mankind, not necessarily as outstanding leaders, but as a component part helping to shape developing humanity toward a civilized goal."

The literature teacher may, first of all, aid the student in becoming adult physically, emotionally and volitionally, by helping him in the choice of his general reading and secondly, by the choice of subject matter in class that will develop attitudes necessary to keep civilization growing. The first step is to learn what is important to the individual, what makes life significant to him, what is intolerable to him in his home, school or community situation.

John, in his relations with his family, school or employers, may be experiencing conflicts resulting from restraints imposed by an accepted authority. These restraints have brought out only negative responses in his classes. He hates reading but he likes "Huckleberry Finn" because Huck lives the life or revolt that John wishes he were brave enough to live. "Prester John" may be the next teacher-offering. Here we have the revolt of a person who represents all the mistreated people of a great continent. The next step might be to suggest "Mutiny on the Bounty," a study of the revolt of one man against the rules of a great sea-faring nation. It is possible that the boy might then even read "Devil's Disciple"; for the more intense the boy's bitterness and desire to revolt against authority, the more intense the drive for reading may be. Discussion of the problems in the book can air John's own rebellion without any need for him to become

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too personal. In the universalizing of his own conflict his negative approach tends to become more positive.

Henry's whole approach to life is childish. Of his own choice he reads nothing but adventure "funnies." "Tarzan of the Apes" is the only book that has meant anything to him. He dreams of himself as being physically a super-man. He does great and noble deeds single-handed. Surely the teacher has something to build on here. Can Henry be led from his love of the physical clash and love of adventure to fighting for an ideal? "Call of the Wild," "Jim Davis," "Moby Dick," "Les Miserables": each is a step in the direction of growth of a sense of values.

Jean hates everything that would make her a "lady." Why does she have to live in the complicated modern world when she would like nothing better than to drive a covered wagon through a band of attacking Indians? Movies of adventure and western life are her greatest interest. Discussion outlines and rating scales for the movies she sees will help her to carry her enthusiasm into every day classroom conversation situations. Her reading might then begin with "A Lantern in Her Hand" and extend to books like "Per Hansa" and "Giants in the Earth."

The literature teacher, of course, must keep in mind always that the only real difference between a person who reads only so-called literary "trash" and one who reads broadly from fine literature is, in the last analysis, the vitality of the brand of thinking and acting that results in every day living. The one who reads on a low level is like a person who eats only cake; the other who reads on a high level is like one who eats all foods necessary for a strong body. Never must the student on the secondary level be made to feel that his interests are low and that he is an inferior because he likes to read what his English teacher calls "trash." In his junior or senior year, perhaps, he will be able to recognize that he was formerly living on a very low round of the ladder of life. He may see that his serious mistake was that he was not taught sooner that to be incurious concerning the heights one may climb on that same ladder of life is the worst error of mankind. When the student can get adequate aid in evaluating his likes by group discussion and can gain a glimpse of an amazingly rich and fascinating future life based on that liking, there is, literally speaking, no stopping him in his achievements.

After a standard for growth has been set up for the outside reading of the high school student, the actual material presented to him in class work must be carefully scrutinized. Can it be so chosen and presented that it will develop attitudes that will lead him into constructive living?

When we can answer the following questions fairly intelligently we are ready to prepare our course of study.

What is important to the individuals in our class? What makes life really significant to them? What is intolerable in the school situation that makes Jane want to play truant, Arthur to steal? What makes John so lazy? What influences in our classes, in our school, in our community are forming negative approaches to learning? Which are forming a foundation for real delinquency? Only when we have really satisfactory answers to the above questions are we ready to propose a course of study to high school students whose purpose is to develop a sense of values in living.

We have now the goal of achievement set up by the parent with a

possible approach of the literature teacher. How do such approaches work in a class room situation?

Let us use a world literature class in twelfth year as an illustration. A variety of tests and discussions showed the students to be confused by the personal sufferings caused by war; bewildered by the brutalities about them; desirous of trying out their own personalities, yet slowed down in their thinking and acting by the belief that machines are more powerful than man. As a group they wanted to know more about living harmoniously together. In the face of the chaos produced by war, it was perhaps natural that their interests tended toward jobs of social service rather than thought of personal gain. They were perplexed and troubled by the wide divergencies of standards of conduct as propounded to them by their elders and those put before them by movies, magazines and conduct of adults themselves in the community and in the nation.

Where, then, can the teacher begin? The class chose the theme for the year: a study of barbaric and civilized trends in everyday life. The first six weeks of the course were given over to a study of human conduct as they found it in novels. Thumbnail reviews of all books read were compiled by the students for careful study. Some students read as many as ten novels in the six weeks. Their reading ranged from novels like "Magnificent Obsession" to "Vanity Fair" and "War and Peace." The class chose "Dr. Jekyll and Mr. Hyde" as the book that best personified the theme, the barbaric forces struggling with constructive forces.

The results of this study were out-standing from three angles: first, the amount and high literary quality of the material read; secondly, the excellent panel and group discussions that were student-led; third, the standard of values on human conduct and the purpose of life set up by the class. The war, life about them, and the books that they had read showed them that people take three approaches to life: the cynical, the destructive and the creative. They had many examples to show that the first view-point leads to littleness and mediocrities; that the second strikes deep at any real belief that common man is capable to developing judgment; and that the third represents the eternal struggle between justice and evil.

An oral test given at the end of six weeks showed excellent, conversational ability around the theme. General statements without identified proof were severely dealt with by the students. They recognized many weaknesses but were very proud of achievements in reading, writing, vocabulary, conversation; but most of all in their understanding of values of human conduct.

The fact that a sense of values of life cannot be kept in the walls of a class room was evident at the end of the study of this unit. The class had, after much discussion, accepted the belief that the goal toward which civilization is striving is good. They had listed many of their own weaknesses in following this goal. The next step was a study of the causes of those weaknesses. Definite community problems were then for the first time noticed. Dr. George Bell, our principal, was asked to explain the purpose of coordinating councils in the community. A committee studied the Altadena Plan for handling delinquents. In the discussion of the problems brought up by these discussions, the class as a whole was rather

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horrified to discover the large amount of prejudices openly expressed against religious sects, political groups and people of different economic levels in the community. As a group they felt that such prejudices were a definite liability in achieving the goal of world understanding. What could they do about their own prejudices? They asked if such a study could be fitted into world literature class. My answer was "Literature represents the struggle of the unjust forces in life with the desire in the heart of man for decency and justice."

They asked Dr. W. Henry Cooke of Claremont College to talk to them about "loaded" terms and their relation to prejudices. Those interested wrote to newspapers when they found such terms in local county papers. The class studied and discussed together "Probing Our Prejudices" by Powdermaker and "The Races of Mankind" by Benedict and Weltfish. All propaganda devices such as name-calling, glittering generalities, etc., were reviewed thoroughly. In the battle-heat of discussion we thought we needed that knowledge for self protection! They selected for study the five subjects they had found themselves most intolerant about: Americans of Jewish, Japanese, Mexican and Negro backgrounds and juvenile delinquency. The material read and discussed during the six weeks of this study, if teacher imposed, would have been termed impossible. Foreign policy association pamphlets, court decisions, sociology text-books, newspaper and magazine clippings, novels, biographical material, poetry, short stories were all grist to the mill. There was never a dull moment for teacher or librarian! Most of this material must be thoroughly documented if the student is to differentiate between emotions and cold fact. Friday of each week was given over to discussions led by speakers chosen by the students. Groups from the class visited a county coordinating council institute panel; they spoke at four local community clubs; they asked to have a member from their class sit in as a representative at local coordinating council meetings. They were instrumental in organizing a junior coordinating council in high school which sponsors a local young people's recreation club. An intracultural club among girls was started by the Girls' League because of their influence.

Did the work when finished change any attitudes? The real test of a change is, of course, not verbalization but what the student does because of what he has learned. I shall not be foolish enough to make any guarantees that such a study in literature classes is going to turn the world into a Utopia. All thirty-five in class tested high on attitude tests given them on intracultural relations. Ten said that they still disliked certain minority groups and probably always would but they knew now that their dislike was based on pure prejudice.

One student wrote from a camp in Tennessee that he and two other white boys had been instrumental in circulating a petition on a train going to a southern camp asking of authorities that a wounded colored friend of theirs be permitted to eat on the train with them. The petition was granted. What his view point is now after a first hand knowledge of the problem as he has seen it in the south is problematical.

One girl in the class presented a very thorough study of the reasons for the evacuation of the Japanese Americans from southern California. Many in the class refused to accept statements of authorities on the subject

because of emotional upheavals caused by the war. They told her in no uncertain terms that no truth could change their hatred of Japanese. She came to me shaking with emotion and wanted to know what anyone could do when people simply would not believe substantiated truths. After thinking she answered the question herself and here is her answer. The barbarian would fight with his fists; the civilized man would fight with pen, music, art, cartoons. She ended by saying, "But what can I do?" My answer was, "Have you thought of turning this emotion of yours into poetry?"

A good many in the class had been deeply stirred by what they had been thinking and doing. I explained that when one's thoughts were deep and powerful that sometimes the only way to get rid of doubt, unhappiness and fear was to write those thoughts down. If they were about some great unsolved problem they would probably be poetry. The results were to me amazing, for we are a very small high school and there is little place in our curriculum for any constructive work in creative writing.

Here are a few examples out of many fine pieces of thinking written at the end of their study of prejudices. The first is "Realization" written by Helen Kendrick.

The sea of prejudice crashes down,
Fear wells in me,
I want to run and run
To my hill, green with grass,
A warm breeze playing with a blade of grass,
A white cloud moving in a deep blue sky
Free from the thunder of the sea;
But the seething, foaming terror surrounds my hidden sanctuary,
Climbing, slowly mounting.
No place to run!
I must face it.

Another one is "Bits of Jet" by Laura Guthrie.

To thee, oh people of a race defined
As Negroid, let me turn
When my heart sinks low
And shadows fall
On this terrestrial sphere
And let me take strong courage then
In fleeting thoughts of thee.
Of thee, with chains bound tight,
And round about your feet, we ask
With knees bent humbly down
"Forgive us please, we pray, for
Unjust lock and key."
And may our hearts willingly tread
Upon the shores of Tolerance,
And may we launch our souls
On seas of Charity.

And Hope, who will abide with thee
 In all thy grief and wretchedness
 Will find in Truth a place
 To rest her weary bones.

A third one "Aspirations" was written by Bruce Kerr

A breeze revolves a windmill,
 A tall, gray, gaunt skeleton
 On a grassy hill.
 All day from the cool depths of
 The earth,
 The mill patiently pumps
 Water;
 Not for itself,
 But for all that thirst.

God will be my compulsion
 That I may draw from the
 Depths of my soul,
 Understanding of the incalculable,
 And encouragement for my
 Fellow man.

Will such a process of teaching life values produce the type of son and daughter that the citizens of a community desire? I believe it will. Decent principles become a part of our lives only as we grow in positive experiences. The method of approach to the study of the purpose of life through understanding the attitudes of a student toward life, and beginning there in his reading to build through study and community experience a core of stability in facing evil rampant in the world, seems to me the only practical one. The world needs young people and old to-day who can understand Hildebrand when he says, "I have loved justice and hated iniquity. Therefore, I die in exile." The field of literature is not important as a field of facts. Its importance lies in helping the student to understand that men like Hildebrand in exile are happier than the business man they know who ignores injustices next door to him. It can help them to understand the difference between a sterile and an abundant life.

Yes, all about the student lies the means by which he may become great, once he learns how to keep in good standing as a member of the human race.

BUILDING UNDERSTANDINGS IN THE AMERICAN WAY OF LIFE: The Middle Years

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With so much emphasis on learning *how* to read, it is possible we may be losing sight of *why* we read. A number of recognized authorities in the field of children's literature have stated without reservation that the field of literature is the most neglected in the elementary school curriculum.

This paper attempts to give brief consideration to the thesis that literature in the middle years should be selected and used in helping children gain understandings in the American way of life. The following beliefs are briefly considered in the development of the problem:

Children are the product of their experiences.

Reading experiences can be selected to further worthwhile ends.

The growth and development characteristics of age groups contain implications for selecting content and method of the educational program.

A program should be planned to help children know the world into which they are growing.

Curriculum workers and teachers must have wide acquaintance with children's literature and insight concerning possibilities for its use.

Children Are the Product of Their Experiences

In Walt Whitman's poem, "There Was a Child Went Forth" you will recall the lines:

There was a child went forth every day;

And the first object he looked upon and received with
wonder, pity, love, or dread, that object he became.

And that object became a part of him . . .

After taking the child through the hours of the day, through the seasons of the year, through his associations with his family, his friends, his acquaintances, Whitman concludes

These became a part of that child who went forth every
day, and who now goes, and will always go forth
every day.

Here, Walt Whitman with understanding and simplicity has set down the things that may become part of any child through his daily associations and experiences—the resulting attitudes, emotions, and beliefs, the understandings and knowledge.

Reading Experiences Can Be Selected to Further Worthwhile Ends

The late Paul Hazard, in his scholarly treatise, *Books, Children, and Men*, states that "England, more than any other country, has implanted its

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own eternal characteristics" in its children's books. He further shows that these characteristics deliberately have been made part of the culture of the vast majority of the citizenry. In peace or war, in joy or sorrow, in calm or troubled times, there are these emotions, attitudes, ideals to identify, to share, or to use for inspiration and guidance.

High tribute by this same scholar⁴ is also paid the United States for the many and beautiful children's books published, for the attractive, inviting libraries designed for children, where all respect is shown for the individual child regardless of status.

These things we have in abundance. But, is it possible that in our concern with the mechanical aspects of learning to read, we have not been sufficiently concerned with a continuous program of literature planned with considered purpose?

Growth and Development Characteristics Contain Implications for the Educational Program

The growth and development characteristics of age groups contain implications for selecting content and method in the educational program. Very briefly summarized, they are as follows⁵ for children in the middle years in school:

Physical

Increase in strength and dexterity
Small muscle development
Improved immunity
Fusion established

Intellectual

Interest in other people and other times
Interest of boys and girls differ
Interest in cause and fact

Social

Group games
Gang leader ideal
Sex cleavage
Race attitudes influenced by adults
Little show of affection
Rules of children better accepted than adult

These characteristics give clues for selecting books for children in terms of general interests, sex differences, and individual differences. They give clues in identifying content dealing with other people, other times, in identifying the materials which deal with activities of other children, in identifying materials which deal with the present in fact as well as in fiction. We realize some literature may be presented to the entire group of children by the teacher in a sharing situation, that group and individual development will necessitate teacher guidance in independent reading in other instances.

The first few weeks of the school year should be devoted to the study of each child to gain a fairly comprehensive understanding of his status. This will be a continuous process as children are constantly changing through growth. Since the program should be developed in accordance with children's needs, interests, and purposes to have significance, children's interests should

be utilized as a starting point in their literature experiences. The level should be raised as time goes by. Full recognition should be given boys and girls at different ages. Old patterns will be modified and new interests created in raising the level of pupils' tastes. Learning to read increases one's sense of power, opens the door to new satisfactions and to new sources of knowledge. Hence, a child's satisfaction in achievement and progress becomes a primary concern.

Planning a Program to Help Children Know and Interact with Their World

In a recently published study, Dr. Marie Rankin⁶ concludes that fashions in fiction change to reflect major shifts in culture and that reading guidance by adults may well consider the interests of boys and girls as well as the sanctions of literary critics.

Betzner and Moore⁷ state that as schools remake their programs they will be compelled to examine the conflicting demands and strong pressures met by present-day children and to realize the need for inspiring records of human endeavor purposefully selected.

In a presentation of the emerging English curriculum for the elementary school, Dr. Dora V. Smith⁸ states that the first element coming clearly into focus in the emerging curriculum will center on "communication of *ideas, attitudes and ideals.*" Such a program would be planned to help children know the world into which they are growing and to be able to interact with it, to make adjustments to social life and to acquire functional concepts and understandings of our American way of life. This framework would embrace *contemporary life, past endeavors, and our expanding world relationships.*

Literature should communicate to children a perspective of our heritage as Americans; it should also help them to see America as it is today, giving increasing understanding of all the cultural forces which make us what we are; and it should reflect the spiritual unity of boys and girls all over the world. Making one nation out of many is the unique contribution of America. Finding the literary selections which give appreciation of the people who make up our nation and our world, selections adapted to the level of maturity, to the varying interests, and to the rates of growth should aid in the social development of boys and girls in their expanding horizon of acquaintanceship with different peoples.

Some Illustrative Books for Building Understandings in the Middle Years OUR HERITAGE AS AMERICANS

The actual journal kept of the Mayflower Company in *Homes in the Wilderness*,⁹ records the exciting things that happened daily. The dramatic struggle of those who made their homes in the wilderness is realistically and interestingly told.

Robert Lawson retells the story of his mother and father and their families before them from stories remembered from boyhood, in his book, *They Were Strong and Good*.¹⁰ He says it is not alone the story of his parents and grandparents, but is the story of the parents and grandparents of most of us who call ourselves Americans.

*George Washington*¹¹ becomes very real as boy and man to young readers in the D'Aulaire presentation.

In *Little House in the Big Woods*¹³ and *Little House on the Prairie*¹² both boys and girls may sense the spirit of the pioneers braving dangers of the wilderness to establish homes based on our ideals of freedom and of opportunity for everyone.

One story of the Westward Movement, is the lusty, colorful *Tree in the Trail*¹⁴. A young man travels to the West with the covered wagons over the Santa Fe Trail, a kindly Indian saves his life, and he marries a beautiful Spanish girl in the Southwest. The enduring *Tree in the Trail* stands as a symbol, recording time and significant events in the flow of time.

*The Story of California*¹⁵ shows the many people who had a part in making California, and their activities. Of course pirates, holy fathers, Spanish cavaliers, and gold seekers are all included.

The story of a little colt growing up to become the father of a famous family of Morgan horses is a delightful contribution to the development of background of things American. *Justin Morgan Had a Horse*¹⁶ tells the story of a Vermont school teacher who took an unwanted, short-legged colt in part payment of a bad debt and of a bound boy who loved the colt at first sight, gentled and trained him and determined to own him some day.

America's boisterous heroes come to life in *Yankee Doodle's Cousins*¹⁷ in hearty style.

In *The Rooster Crows*¹⁸, one finds a book of American rhymes and jingles, counting-out games and rope-skipping rhymes which calls up visions of all American childhood growing up in country homes, in city homes, playgrounds and streets, all over America, chanting similar familiar words which have come to be a part of our common heritage of American folk-lore. Most of these have been picked up by children in social situations. It is to be expected that children will delight in identifying in print these rhymes and jingles most of which up to now have been oral, social experiences.

AMERICA TODAY: ITS CULTURAL IMPACTS

Doris Gates, in her *Blue Willow*¹⁹, presents the picture of a migratory family and the problems of a migratory child with sympathetic insight and understanding. Ten-year-old Janey Larkin, dreaming of a real and permanent home, longing to reply that she and her family will stay "As long as we want to" instead of "As long as there's work" when asked concerning the length of her family's stay, is an all-too-frequent temporary member of today's classroom. Miss Gates's objective presentation should help children in gradually building up awareness of the widespread migratory problem, its impact on every-day life, and some of its social implications.

The little Polish girl's paintings of the one hundred dresses she didn't own but wished she did reveal a child's concern over status in her environment. The theme is convincingly developed in *The Hundred Dresses*.²⁰

Indian children living near Santa Fe are represented in their quiet daily life and tasks in Ann Nolan's *In My Mother's House*²¹. The dignified, beautiful pictures of the same quality as the poetic text. We

see the people together working, dancing, feasting and we sense their quiet dignity and the importance of the home.

WORLD UNITY: SIMILARITY OF EXPERIENCES AND PROBLEMS

From a spoiled child in a Budapest hotel to becoming a healthy, enthusiastic member of a democratic farm family in Hungary is the exciting tale of Kate told by Kate Seredy in *The Good Master*²³. Boy and girl relationships between the cousins and family responsibilities are interestingly and excellently portrayed.

The life of Paco and his sister in Ecuador, in *Paco Goes to the Fair*²⁴, while lived in a different manner than ours here, has concern with the same problems, the family, their work, and their customs. They rediscover the ancient dyes of the Andean Indians and are taken to the Fair in Quito.

*The Cocoa Dancer*²⁴ tells the story of children on a beautiful island in the Caribbean Sea, revealing their customs and activities. Ebby, the little boy, is very much in earnest as he learns to polish cocoa beans and to become a cocoa dancer. Ebby's little sister, Dodo, lovingly helps him in his efforts, as do his mother and big sister.

Curriculum Workers and Teachers Need Wide Acquaintance with Children's Literature and Insight Concerning Possibilities for Use

All of these things will be done only as teachers and curriculum workers, themselves, know, understand, and enjoy our rich cultural heritage. Unlimited opportunities are at hand to get acquainted with these materials in our daily living. Public libraries and book stores invite us. Excellent manuals and reading guides are available. Current educational magazines such as *Childhood Education* and *The Elementary English Review* have rich content. Perhaps you have already started your own collection which is really one of the most effective ways to give purpose to our own personal efforts.

²¹Whitman, Walt. *Leaves of Grass*. New York. Modern Library, Inc. [1940].

²²Ibid.

²³Hazard, Paul. *Books, Children, and Men*. Boston. The Horn Book, Inc. 1944.

²⁴Ibid.

²⁵Faculty of University School. *How Children Develop*. Columbus, Ohio. The Ohio State University. 1946.

²⁶Rankin, Marie. *Children's Interests in Library Books of Fiction*. New York. Bureau of Publications, Teachers College, Columbia University. 1944.

²⁷Betzner, Jean and Moore, Annie E. *Everychild and Books*. New York. Bobbs-Merrill. 1940.

²⁸Smith, Dora V. "The English Curriculum in Perspective—The Elementary School." *The Elementary English Review*. Vol. XXIII, No. 2 (Feb. 1946). 45-54.

²⁹Bradford, William and Others of the Mayflower Company. *Homes in the Wilderness*. New York. William R. Scott, Inc. Publisher. 1939.

³⁰Lawson, Robert. *They Were Strong and Good*. New York. Viking. 1940.

³¹D'Aulaire, Ingri and Edgar Parin. *George Washington*. New York. Junior Literary Guild and Doubleday, Doran and Company, Inc. 1936.

³²Wilder, Laura Ingalls. *Little House in the Big Woods*. New York. Junior Literary Guild. 1932.

³³Wilder, Laura Ingalls. *Little House on the Prairie*. New York. Harper. 1935.

- ¹⁴Holling, Clancy Holling. *Tree in the Trail*. Boston. Houghton Mifflin. 1942.
- ¹⁵McNeer, May. *The Story of California*. New York. Harper. 1944.
- ¹⁶Henry, Marguerite. *Justin Morgan Had a Horse*. New York and Chicago. Junior Literary Guild and Wilcox & Follett Co. 1945.
- ¹⁷Malcolmson, Anne. *Yankee Doodle's Cousins*. Boston. Houghton Mifflin. 1944.
- ¹⁸Petersham, Maud and Miska. *The Rooster Crows*. New York. Macmillan. 1945.
- ¹⁹Gates, Doris. *Blue Willow*. New York. Viking. 1940.
- ²⁰Estes, Eleanor. *The Hundred Dresses*. New York. Harcourt Brace. 1944.
- ²¹Clark, Ann Nolan. *In My Mother's House*. New York. Viking. 1941.
- ²²Seredy, Kate. *The Good Master*. New York. Viking. 1935.
- ²³Gill, Richard C. and Hoke, Helen. *Paco Goes to the Fair*. New York. Henry Holt and Company, Inc. 1940.
- ²⁴Rue, Flora C. *The Cocos Dancer*. Chicago. Albert Whitman and Company. 1945.

READING PICTURES

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Very few people realize that we have to teach children to read pictures. The average person assumes that he has just to look at a picture to see what is in it. He knows what he himself sees in a picture. He does not realize that others may see something quite different or may see vastly more than he does. Of course, if he had ever discussed a picture at any length with a group of other people, he would have discovered what the psychologists have long since demonstrated: one sees in a picture only that which arouses his own past experience. He sees what he knows.

Someone has asked, "If we see only the familiar, how do we ever see anything new?" There are at least five answers to this. (1) We often see new things which are just variations of the old. A child may see an animal of a different color and size. (2) We may see combinations of the old. A child who knows an elephant and also a box may see a box on an elephant's back, which is called a howdah. (3) We may see "new things in a picture," meaning more and more of the familiar. If you have a picture hanging on your wall, you keep seeing things in it that you had not noticed before. (4) We may accidentally see things which are largely, though not entirely, new by having our eyes accidentally fix upon an object or a relationship that they have always passed over before. We may, for instance, be familiar with a horse in a picture and a figure on that horse, but some day our eyes may shift from one to the other and we may notice the relative size of the two figures that we have never before been aware of. (5) Finally, we may see something new by having someone else call our attention to it. That is a job constantly being done by the parent at home and the teacher at school. In

any picture more is generally seen by the adult than by the child. The teacher especially will have the wider experience which causes her to see more. She wishes the children to see all that she sees. That is why she teaches the reading of pictures.

When young children receive picture books, they have their first experiences in the reading of pictures. Adults or older children point out things in the pictures and give them names. The name is useful in talking about the picture, but the child is learning to see more in the picture than he did before. The same process is very important in grade one. The children in the class discuss the picture on a page. Different ones see different things in it. The teacher points out still other things. Thus, the picture comes to have a common meaning for the group, a common meaning that is needed for understanding the story. One of the striking differences between teachers in the primary grades is in the way they teach the reading of pictures. Poor teachers have the naive view of the average person, that the children need merely to look at the picture to see what is in it. Skilled teachers spend considerable time with the class in picture reading. They will even read pictures over and over again because they know that the children will see more each time.

Primary teachers are, however, more skilled than later teachers in teaching reading of pictures, probably because they understand children better. It is in the middle grades and later that the reading of pictures is most neglected. Consider, for instance, the subject of geography which, strange to say, so many children dislike. Modern geographies have most beautiful pictures. They are large enough to give a sense of space. They are clear enough to show much detail. Every picture shows dozens of interesting facts. Yet, too many teachers just assume the children will look at the pictures and see what is in them. For instance, one geography picture is a business street in the chief port of the island of Trinidad. The children would look at it and see just an ordinary street of small stores with a lot of people going up and down. A teacher might ask which way the automobiles are going, and the children would discover that the traffic moves on the left, as it does in England. The teacher would call attention to the kind of cars, as an indication of how long ago the picture was taken. She might ask the children to count the bicycles, and they would find out there are many more than you would see in any American city. The children should then notice the balconies that give shade to the second story and to part of the sidewalk. They should read the signs as far as they can. They should notice the telephone wires and street lighting. How the people are dressed is an interesting point. And probably few children would notice, unless their attention was called to it, the fact that about two blocks away the street runs right into the mountains. Many more things can be seen in the picture, but we have indicated enough to show how much children would not see unless they were taught to read the picture. If all the pictures in any geography were adequately taught, the subject would have an interest and vitality that is now practically unknown in the grade schools. The important facts of the text would come as a natural supplement to the pictures. And most of all, there would be a vast deal of thinking about the problems of other peoples and our own related problems that would make geography a real preparation for vital citizenship.

Failure to teach pictures has been one of the large reasons why the great movement toward visual education has failed to give the results that we all at first expected. Pictures are only one method of visual education, but a most important one. Still-pictures have not been adequately taught and still less attention has been given to the teaching of moving pictures. Adults go to the movies every week and naively assume that they see the movies they look at. They never realize that a really worthwhile moving picture needs to be seen a number of times. Only a few have discovered this fact by having accidentally or purposely seen some film over and over again. This is not to recommend that everyone stay and "see two shows." It is much better to see the film a second time some time later. But here is the suggestion you can make to any of your friends. The first time you see a film, you focus your attention all the time on the main characters. The next time, you should purposely not look at those characters, but watch the other people in the picture. You will find their work very interesting and worthwhile. Then, the third time, you should not look at characters at all, but see the infinite pains given to settings, to decorations, to clothing, and other details. The next time you can find immense interest in watching the work of the cameraman, the way the sets are lighted, the direction of the shots, and so on. If anyone takes the trouble to apply this method to a good film, he will discover that there is a great deal to learning how to see a motion picture. Our suggestions have been only a beginning. This experience will lead one to see that we can do a great deal in teaching children to see moving pictures.

So far, we have urged that children get more from the pictures that we put before them. We must now ask whether we can so teach the reading of pictures that they will get more from all pictures they see the rest of their lives. That is, are there any general results from teaching children to read pictures in school? Obviously, the first and most important result is the idea that pictures need to be read, that the full meaning does not, as it were, leap into one's mind on first sight. Continued experience in careful reading of pictures will surely give this idea. Second, there may be the habit of giving more time to a picture. We might call this the "slow reading habit for pictures" or the "study habit for pictures." Surely, if each one of us dwelt longer on any picture we were interested in, we would get vastly more from it. The third habit may be called the "habit of exploration." That is, one may explore a picture part by part. In this way, one is giving the parts of a picture more of a chance to arouse associations. It also encourages the accidental seeing of relationships that we have mentioned earlier. Finally, real discussion of pictures, like real discussion of any paragraph in a book, develops the habit of thinking about what we perceive. This is one of the most needed habits in American civilization today. People travel but do not think about what they see. People go to the movies several times a week, but do not discuss what they sat and looked at. People see picture pages in the daily paper, picture sections in the Sunday paper, whole picture magazines, and fine illustrations in all magazines, but they do not ponder over this constant mass of perceived material. In one sense they are having experience, and in another they are not. So much comes before their eyes, but their brains do so little about it.

These considerations will emphasize that a major neglect in our

educational system is neglecting to teach the reading of pictures. We are, in fact, providing pictures more and more. But children do not see in the pictures that which they should. And they do not get from seeing the pictures the general conceptions and the general habits which will make them good readers of pictures outside of school and in later life.

READING THE ARMY TRAINING FILM

Homer W. Davis,

Formerly of the Signal Corps of the Army of the United States

Success in warfare is determined largely by the ability to read rapidly and understandingly a multitude of things—the sky, the land, people, books, pictures, etc.

Pictures, and more specifically—motion pictures, gained a significant position in the Army “reading” program and grew into a world-wide organization of production, distribution, and utilization.

If you were an Army officer and were responsible for teaching soldiers to “read” the land to determine whether it were safe, or whether it had mines and booby traps hidden in it, and if you thought you could speed the teaching of these men to “read” the land faster and better with a motion picture, you could have started the ball rolling toward the production of such an aid. Ideas developing from similar needs resulted in the production of hundreds of training films, but the path from the initial idea to the final film involved much reading along the way.

The idea had to be expressed on paper and be forwarded to training officers in charge of the appropriate branch of the service, and if they approved it, the statement then was sent for approval to the superior War Department officials, in charge of training. If the approval of these officials was secured the film idea was turned over to technicians and subject-matter specialists, who added their suggestions. If the filming then seemed practicable, it was given to a project officer who allocated the work to scenario writers, technicians, and photographers for reading, interpretation, development. A final scenario with final approval by ranking officers was the green light for production—the first step; distribution and utilization was yet far in the future. Production of a film was no assurance that the film would be distributed. After all this preliminary work, and even after ideas were presented on film, occasionally subject matter became obsolete, techniques changed, importance waned, and distribution was therefore cancelled. The number of copies of films approved for distribution varied according to the use to be made of each film.

Distribution became a major step in the program. Central film libraries were established at the headquarters of domestic and foreign commands, and sub-libraries located in strategic areas were administered by the central exchanges, and they obtained their equipment and materials through the central exchanges. Occasionally auxiliary sub-libraries were necessary. Each library was responsible for informing the units it served about training aids it handled (training films, film strips, projection equipment; to some extent maps, charts, or other visual aids) and the conditions for obtaining them. Advance notifications of films being considered by the Army for production and still in the scenario stage, were forwarded to the libraries from the production and distribution headquarters in New York City. Libraries, on the basis of the type of training locally, indicated whether they would like copies of the proposed films. Occasionally libraries were required to justify their requests. As a part of their service libraries were required to keep their films and equipment in repair, maintain schedules, provide preview facilities, submit monthly reports on utilization and promote more use of the films.

Selling the idea that the films would aid learning is part of the third step—utilization. Successful and worthwhile utilization, though probably the most important step, was at the same time the most challenging. Thousands of dollars can be spent, and were spent, for the production and distribution of aids; the final test was proper use in the classroom so that the ideas, so carefully prepared, would be communicated, remembered, and put to work *for the soldier by the soldier*. To accomplish proper utilization thousands of projector operators were trained and provided certificates upon graduation from projectionists schools. Problems of illumination, ventilation, showmanship and teaching techniques were studied by operators and instructors. The ideal utilization procedure as it was then understood was proposed and it was up to those assigned to use films and projection equipment to approximate the ideal as nearly as possible. In spite of adverse conditions desirable results were obtained especially when men were motivated by the idea that the proper "reading" of a film may save their lives.

During the early part of the war, the men responsible for the production of films were trying to find answers to these questions: How many will benefit more from this film than can be benefited by the use of some other aid? How much and what kind of appeal should the film incorporate with the straight facts and information? What age or experience level should be maintained for this particular film or that one? What appeals and approaches will gain the best attention and desired response? It could not be expected that all films would do what at first it was hoped they would. Changes occurred rapidly and new equipment and new techniques developed over night. To keep abreast new films had to be made and old ones changed or be declared obsolete.

The reasons why some films were used and some were not is important if we are to develop better training films for schools and industry. It is not entirely correct to say that a film which has had little use is a poor film, or one which is popular is a good film. For instance, "Sex Hygiene" was shown as a requirement to every soldier several times and therefore had a high score of showings; the "Triode Tube" had a lower score for

showings but when shown properly at the right time to an audience ripe for seeing it, it was of considerable value.

We were over-enthusiastic during the early days of the war in regard to film production, but compensating good has come from the mistakes of those days and the mistakes are not to be discredited. The good films which were produced were worth the cost many times over that was expended for the few films later declared obsolete and those which were not used. Enthusiasm in the current hum of civilian production, now that the fighting is over, may result in educational films of little value. An increasing number of educators and motion picture producers encouraged by the success of the Army film program want to see more educational movies made. Producers are saying today, as they have for several years, "Tell us what films you educators will buy, and we will produce them and give you just what you want." Educators have difficulty deciding and agreeing as to what they need, what approaches, grade levels, attitudes, subject matter and methods of presentation will be best. However, producers are going ahead turning out films and trying to sell them—many of them very good—in spite of the hesitancy and indefiniteness on the part of those who are expected to use the film and who have been invited to contribute concrete advice. If the enthusiasm will last long enough so that many more good films can be produced, the attention which films gain may encourage better judgment as to what they must have to be worthwhile in the classroom, assuming the instructor uses the film to the best advantage.

Certainly all films should not follow one pattern any more than all books should, but today there is a great need for knowing what kinds of films will contribute significantly to given teaching situations. Greater familiarity with films and techniques of presentation of ideas by means of film would help educators in the evaluation of them and give them a foundation for suggesting ideas for production of new films.

The Fighting Men Series have been acclaimed some of the best films that have come out of the war, such as "Kill or Be Killed," "Curiosity Killed a Cat," "Wise Guy." These were boldly dramatized, realistically filmed stories of combat situations where soldiers did the right and wrong things. The lessons were evident without the narrator or teacher saying, "do this—do that." The Why We Fight Series, produced for purposes of orientation, was also considered "tops." This series included "Battle of Russia," "Battle of China," "The Negro Soldier," and others which were documentary and were attractive because of the clever use of tempo, sound effects, climax, action, and subject matter.

It would be as incorrect to say that dramatic films were better than the many "straight teaching," or what are more commonly called "nuts and bolts" films as it would be folly to dramatize the "how" of inflating rubber tires. It is surprising what techniques have been tried, nevertheless, and also surprising to see what life can be given to statistics as is evidenced in "Two Down and One to Go," which was released when Germany collapsed.

A very popular Army teaching "pill" is SNAFU, a cartoon film character something like Walt Disney's Dopey. SNAFU coats the pill with many laughs. He is an A#1 teacher and were he to visit a grade school

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or high school, he would very likely have many friends who would learn to love him and love to learn with him. The Army and Navy Screen Magazine, which was shown overseas weekly, was an effective bit of film reading material which helped the "boys" to know what was being done for them on the home front and pepped up their morale. Popular bands, dancers, and entertainers often appeared in the Screen Magazine—a magazine seen only on the screen; never in printed form.

It is possible that those who produced the military films, should they produce for school consumption, will be better able to tell the educators what educational films should contain than the educators themselves can say—unless the educators study the "teach-nique" and methods of communication and reading of ideas in and with film, projector, and screen.

The Army "film-reading" program, part of which comes under the heading of "utilization," included the publication of printed instructions to Army teachers in Field Manuals (FM 21-7) as to how to prepare audiences for better reading of 16mm movie films just prior to the screening of them. The manuals suggested that each film should be introduced by a talk explaining to the soldier why the film is important, why it is important that he reads the film, why it is timely, what specific points should be looked for which are most pertinent. The manual also suggests that a quiz be given with the film when practicable, because such testing encourages better attention and provides information as to whether the audience is understanding the film. This technique of encouraging better reading from the screen is worthwhile—it boosts the comprehension and retention to a surprisingly increased degree. Statements of introduction by instructors which were not conducive to better learning yet which have been made at film showings were something like this, "Here's a film you have to see whether you want to or not." Statements which were conducive and were often used in an introduction read, "This film may save your life if you keep your eyes and ears open and remember what you learn."

Army films, such as "Personal Hygiene," "Safeguarding Military Information," and others have introductory talks built into the films explaining the importance of the film and the reasons by the ideas expressed in it are important to the soldier. The Fighting Men's Series presents ideas so that the soldier associates himself with actors and situations pictured. In strong realistic language these pictures show the right and wrong way of living and fighting in combat areas. Clever and challenging techniques of showing the absurd mistakes and the obvious results of the careless soldier, the use of repetition, dramatic climax, comparisons, contrasts, concrete and abstract examples, statistics, graphs, cartoons—all were prepared and photographed with the reader in mind.

Printed titles were in some cases used to help the audiences to read training films better. Occasionally a combination of titles, narration, and "flash shots" were incorporated into film introductions for the purpose of orientating the audience, stimulating interest in what was to follow, and to give the audience an idea of what was especially important in the film and why it was important. This technique of building "reading aid" into a film had some advantages because instructors were often very limited in time and did not preview the films or evaluate them carefully as a preparatory step in planning an oral introduction. "Canned" introductions as a

part of a film are satisfactory in some cases, but not in all. They are better than a stumbling, ill-prepared oral statement by an instructor who does not know his subject and his audience.

Another aid, the purpose of which was to improve reading of films, was a written digest of each film accompanied by test questions and references to other supporting materials. These digests were made available in printed loose-leaf sheets to be kept in a catalog binder together with numerical and subject indexes to all Army films. These aids for the instructor using film did not mean that the film and digests would replace the instructor; it did help to standardize instruction, save time, and help audiences prepare for the reading and comprehension and retention of ideas stimulated by films.

It is possible to include successfully introductions, tests, follow-ups—all in one film when the film is to be used for very specific types of audiences. The same film without these additional reading aids, however, may have a broader application and be less restricted. It is also possible to supplement a film with phonograph transcriptions containing introductions, tests, and follow-ups having several different approaches suitable to different types of audiences; for instance one transcription can instruct teachers how to use the film, another transcription to accompany the same film but for a different audience can help students (children, adults; experienced, or inexperienced) prepare for the showing. With such auxiliary aids to accompany films even those films using terminology or expressing ideas beyond the experience of the audience can be understood and have wider use.

From the Army training film program it has been learned that for a better peace-time educational film plan the producers and distributors and users of films must gear their work to the *reading of the films* by the audiences. Producers must have the help of educators so that methods can be developed for the widest possible use of good films for many types of audiences. Producers cannot afford to make films if but few copies are to be sold. Distribution must be improved so that films and equipment and information about them are readily available. Teachers must have more opportunity to preview and evaluate films. They must also be provided with more detailed and unprejudiced information about the contents and value of films, and they must be given training and practice in techniques of better utilization and instruction with films.

EDUCATIONAL SERVICES ENLARGED THROUGH READING

By Clara S. Porterfield

Kern County High School, Bakersfield, California

"The children are not being controlled at home. The schools are not controlling them satisfactorily. The only solution to training in discipline is compulsory military training at eighteen."

The speaker, a local professional man, made these assertions at a recent P. T. A. meeting. Some of the teachers present, resented his implication. Yet, in the next breath, they bemoaned their own classroom difficulties along that line.

Naturally, all educators are disturbed over the failure of so many parents who do not send their children to the public schools equipped with home training or instilled with desires to succeed. While this does throw responsibilities on the school which it should not have to assume, yet it does not furnish a satisfactory excuse for not beginning at the place where the need is felt and for the school's making a special effort to do what it can for the child.

A teacher's job should be a calling. That very word *calling* carries a heavy responsibility. At least it presupposes a devotion to some cause. Are we not endeavoring to educate young America? The chief aim of education is to develop in each child the kind of personality that will fit him to live a happy and useful life. The starting point in this process has never been pointed out. There is only one thing to do;—start at the place where the need is evident.

I once heard a minister say that he would do only the amount of parish work for which his salary would compensate. His devotion to the cause which he represented was not evidenced by that attitude. The remuneration for a person following a calling can not be counted in terms of monetary consideration alone. Motive and results are the true recompense.

Each school person should be interested first in *Education* and secondarily in the particular subject which he is teaching. The individual courses should fit in tangibly with education's general aim of preparation for a full and successful life.

When the fall semester started in September 1945, I discovered that my schedule of English classes included a 1D section. The first glance at the personnel of this class on the first day of school revealed that they were the lowest mental group I had ever contacted. There was basis for such judgment since my experience has ranged from C and D sections in English in Kern County Union High School to classes composed of only negroes and Mexicans in Watts, a section of the Los Angeles city system.

Wherever you are in our San Joaquin Valley, you are face to face with a population problem, the migrant and the influx from the dust bowl. During the fall, one of our teachers in charge of attendance, stepped into my room to check on a certain youngster, and, glancing around, remarked, "How in the world did you pick so many of this type in one class?"

Our first day together, last September, convinced me that the period would be a nightmare unless their attitude was won—and that speedily.

The manner in which they shuffled into the room and slumped in their seats, coupled with their ambitionless expressions, bespoke a listless unconcern or interest in any presentation of *sentence structure*.

As I looked into those hapless faces, I read in them a feeling of uselessness, of inferiority, of not being needed. Too, I saw them as tomorrow's citizens with a vote which would count as much as the one cast by the most promising student in the student body. An obsession seized me. The semester must result in giving these poor youngsters a sense of belonging to their social order. With this obsession came a plan. Reading would be given a chance to be proved as the solution to classroom situations.

Educators have been strong believers in objectives. All of them have learned the Seven Cardinal Principles. These are no good unless they are translated into classroom realities. That I determined to do by attempting to furnish this group of pupils with an understandable motive for spending an hour each day in an English class, struggling to perfect the use of their mother tongue in its written and oral forms.

Youngsters from this stratum of society are, of course, a direct outgrowth of their environment. Parents, put out at the state law which requires their offspring to attend school when they had planned that the child should help support the family in order that the "old man" could take it a little easier, furnish no incentive for "L. C." to want to learn. In fact it is not uncommon for parents to tell their child that he doesn't need to mind those "high and mighties" at the school. "They're no better than you are."

Recently, I was present when a migrant father was attempting to get a work permit for his fourteen-year-old son. When his request was refused, he very resentfully replied that the state of California was unfair to fathers. He had supported "these kids" until they could get out and make some money—and now they weren't allowed to. "Where's our freedom?" he concluded.

With this kind of background, our problem of stimulating a motive in our pupils is most difficult, but important and challenging.

Teachers have to be salesmen. In order to present their product to a prospect, they have to be good readers. The ability to read the prospect, who in classroom parlance is the pupil, will naturally lead to directing the pupil to read himself.

The fact that the guns were silent following the close of World War II furnished my idea for my project in reading this 1D class.

It was almost an amusing farce to look at the group in front of me and tell them that they had to get this world out of the mess it was in, that whether they wanted to or not, the job had been thrust on their shoulders; they had to assume it, or allow themselves and all civilization to perish.

The atomic bomb scored one victory right then because they began to sit up and take notice. As I continued to attempt to inject a sense of responsibility in language they could understand and, in as dramatic a manner as I felt was needed to help hold their interest, the very atmosphere changed to one permeated with a sense of being important and feeling necessary. That very day they agreed that their main task at present should be to "become citizens worthy of their Uncle Sam." Childish diction! Granted! But it was their own—and their own response.

The next approach was how learning to read, write, and speak English correctly would help them attain the citizenship they had decided was so necessary in tomorrow's world in which they were to assume such a responsible role.

The second day of school, each one wrote a short paper on how knowing the correct use of the English language in its written and oral forms would fit them for useful citizenship in the post war world.

From that day on, that group of people tackled its English exercises with that motive in mind. They turned in the neatest papers, comparatively speaking, of any group I had, including the A sections.

A high percentage of the people in this class had been previously booked as problem cases with the office force. Not a single one of them did reading fail to touch.

Take Alex as an example of a definite result from reading!

Alex headed the list of those who, on the first day of school, shuffled into the room, giving the discouraging picture mentioned above.

One of the curriculum requirements for this section of the English course is to "foster newspaper and periodical reading on current topics." After making the first assignment along that line, I soon discovered that in not a single home represented in that class, was a newspaper taken. Alex was especially insolent about the matter. I read into his reaction that it was one of embarrassment and chagrin. I told him privately that I would bring my paper. He could get it when he first came to the room and thus have his current event ready on time. I'm thankful that I never forgot the paper on Tuesdays, because Alex was the first one in the room and reported to the desk for it. He never failed to have his current event ready.

Putting forth that small effort in reading the reason behind his early reactions in the class, resulted in making his English period pleasant for him as well as for the teacher. There was a carry-over to his interest and accuracy in the English exercises—which is invariably the case when a satisfactory reading lesson of an individual has been consummated.

Then, there was Junior, who, judging by his name, is the idol of someone's heart, but not naturally appealing to his teachers. Junior had developed a decided dislike for school. He definitely reflected the home attitude. His mother, who is illiterate and of the whiny type, covers up for the boy, who has been an attendance problem. His response to the class motive for tackling the English assignments was most gratifying. He co-operatively did all the required work without his former accompanying grunt. It was very encouraging to hear him say, near the end of the semester, "This is the best class I have." And incidentally, Junior was absent from class only one day during the semester.

The race problem has caused varying degrees of concern in the Bakersfield schools. The personnel of this 1D English section included a high percentage of the lower type colored youngster.

Thelma was a large, over-grown colored miss on whom I expended reading efforts with gratifying results. On one occasion, I took the class to see a movie which was recommended for them by the Visual Aids Department. As I left the room, I saw Thelma's black kinky head disappear down the side stairs.

"Ditching! I'll have to attend to her tomorrow," was my first thought.

My second one was somewhat different, however. Undoubtedly she expected to be reprimanded; so for once the incident was treated as one of those things that you "don't see what you see." Since my policy with this class was to read their motives for their responses, I was afraid that meting out the reprimand which she expected would be a hindrance to the plan. We continued to discuss in class our resolve to fit ourselves for citizenship pleasing to Uncle Sam.

That one childish approach met with one hundred per cent response from that low section. Thelma invariably insisted on making up all of her assignments which she missed so that she could get as good grades as possible.

If this girl rises above her environment and becomes a respectable citizen, her school guidance will have to meet a very definite challenge. Her mother, a flashy, attractive woman, runs a business in a questionable section of the city. She desires Thelma for the main attraction in the business, but neither the girl's co-operation, nor fear of the law, has brought success to the mother's ambitions. Twice the mother has tried to withdraw the girl from school on a work permit, and twice she has been refused by the attendance office.

Thelma has the reputation of being thoroughly honest—as reported by the attendance force. She definitely wants to rise above her environment and achieve an education.

Such a responsibility is almost staggering—and may we, her guides in this educational institution, not fail her just through lack of the ability in reading her and in teaching her to read.

Long after school had started, a colored boy, Robert, was transferred to this section. He came with the reputation of being an habitual truant. Of course our project of tackling the English requirements as a means of preparation for successful living in our America, was well under way. A few moments of class discussion as to our progress, gave him the idea of the drift of things in his new class. He caught the spirit, and ended the semester in this class with a perfect attendance record. Not once did he fail to hand in his English assignment. His attitude was so ideal that it was hard for me to understand that he had ever been a problem in school.

I am thoroughly convinced that any amount of effort spent on reading, in this broadened concept, is rewarded in results many times over.

As in all high schools, there is a very definite list of objectives for our English classes which is issued by the department. I assume that every teacher meeting a class endeavors to reach the goals set for his or her particular section.

One of the greatest obstacles in the path of realizing these desired goals is the general prejudice, especially among the boys, against English. It seems to me that a definite "carry-over" into life's experiences must be instilled in our pupil's minds in order to make their high school English appeal vital and challenging to them. It is only natural to do something for which we see a reason.

I naturally expect my students to achieve a reasonable mastery of the fundamental processes of sentence structure and literature appreciation which falls within the outlines of my specific courses, but that mastery is definitely a means to an end—that end being the business of living a richer, fuller, and more successful life after formal school days.

In order to stimulate a motive for effort expended on English assignments, reading must again come to the forefront.

On one occasion I gave the class period over, in all of my English classes, to the project of an extemporaneous written discussion on *Permanent Value Which I Desire From My English Course*.

After a short discussion of the possibilities followed by lead questions, each class unit decided that their school experience was a preparation for later life, and that they would not be required to struggle through courses which were not of value to them in that preparation.

After admitting that English, therefore, must have permanent value, the class was "on its own" to develop the topic mentioned above.

The following are copies of papers chosen at random from B sections of sophomore English classes.

By Babs Taylor:

Some people consider English just another course to pass. The word English is very important, and is going to be one of the most important words in our Post War World.

History, mathematics, and languages are very important for a good education. But stop and think for a minute. There is not one subject that I've mentioned that you can pass without having an English background.

English not only helps you with all of your courses, but is very important as a social background.

When most students leave school, they will immediately obtain employment. There isn't any position you handle that won't take a considerable amount of English. Even the common man depends on it no matter how incorrectly it is used.

There is home making to consider. When the time comes for me to marry and to raise children, I want them to have a good English foundation. The way the children speak always reflects back on the parents. I know when the time comes I'll want my children to have the best education possible.

All this summed up is why I consider it worth my best efforts to master my English courses in high school.

By Jack Buster:

English is the type of course which has importance all through life—from the time you were born until the time you die. It is what you are judged by. The judgment comes by the way you are able to express yourself and the correct way of speaking. Nothing is so noticeable as a speaker who is making errors all through his talk. He is either able to put over a thought or he is not able to.

In an argument, either one puts over his idea to the other, or the other puts over his idea to him. The person who is most likely to succeed is the one who can express his idea with words and points accurately as well as correctly.

A habit in English is just like any other habit. If it is a bad one and a person knows about it, he must teach himself differently. Other-

wise, when he is conscious of making a mistake, he will become ill at ease and the audience will be annoyed. In other words, his entire talk may become a flat failure just because he failed to correct a bad habit in English.

Parents usually want to bring their child up under the best circumstances possible. They might have a beautiful home and everything that the child would care to have, but, if their language that they speak is poor, they will leave a mar on the child for the rest of his life, because he learns to talk like those who surround him. This will be a lifelong hindrance unless he has enough will power to correct his faults.

By LeRoy Smith, who returned to school to finish his education after spending two years in service in the South Pacific:

Willingly I attend school to study English for the purpose of bettering myself for the future. In many respects English is the most important subject in school. It is used most frequently, for we use it every day. I want to study English to build up my vocabulary, my usage of words, pronunciation and spelling. When you have achieved the art of selecting and using words correctly you will be looked upon by your fellow men as a person with intelligence. Many people have very good ideas about certain subjects, but when they try to express themselves, they find it hard to explain clearly. Listeners often fail to get the intended ideas because of the poor way they are expressed.

Through my recent experiences throughout the world, I found that very, very few people in each country have mastered enough education to read and write their own language.

During the war that has just ended, I found that being able to speak clearly and distinctly so that orders of importance could be easily comprehended, was a very important accomplishment. To be able to talk fast enough and yet distinctly, saves many precious minutes which might be needed in a situation.

By Edith Kimbrell:

The real value which I desire from my English course is to actually learn its contents so that I will know how to speak, read, write and understand it proficiently. If I know English thoroughly, I think I will get along much better in life. There is no better accomplishment in this world than to *know* one's own native tongue.

Just the other day the teacher was reading from a pamphlet. She read a statement from E. R. Van Kleek, assistant state commissioner of education of New York. He said, "Employers plead for employees who can speak intelligibly and write legibly." If all the employers do that, I'm afraid there is going to be many people out of jobs. Therefore, we kids should take advantage of our schools and try, if nothing else, to learn our English.

By Tom Blackman:

The value I hope to achieve by studying English is the ability of speechmaking and free expression of my thoughts.

My idea of the purpose of an English class is that it is an aid in preparing you for later life. English should and does, to a certain extent, help a student to think for himself and express his thoughts and feelings more freely. This will be of great value later in thinking out and solving some of the many problems of life. By being able to think out and solve his own personal problems, he will be able to plan and prepare for a more secure future for himself and those dependent upon him.

Already I have realized the value of English when it comes to understanding the phrases used in my other courses in school.

English enables a person to develop and keep conversation going. Thus he is enabled to benefit by discussing the more important and interesting things in life. This helps to make his life much more pleasant and useful.

By Dolores South:

When I'm out of school and old enough to appreciate the tremendous value that can be derived from just a simple thing like an English course, I want to feel that my teacher's time and my own have not been wasted. To be able to sit down and read a book, not a cheap novel but something worthwhile, and really understand the thought the author is trying to put over must give one a sense of pleasure. To be able to talk to someone of obvious culture and intelligence, with a sense of security that some fault in your grammar won't embarrass you is another achievement brought about by proper study of English. To a person of intellect a "don't" where a "doesn't" should be must jar on his nerves, somewhat.

When writing anything (like right now) I'd like to think I was putting down words that made sense and expressed my thoughts smoothly and clearly. The thoughtful study of English will provide such confidence and will result in permanent values for a person's entire future.

This last paper by Dolores was another long mark for reading. The crowd with which she was running kept her in trouble with the office continually. She was so delighted when this effort of hers was recognized that her joyous satisfaction bubbled over to the office force in charge of attendance. In turn, the office was happy because something had caused a favorable response in her. It was gratifying to all of us when her attendance record immediately showed big improvement.

After an interim of a few weeks, I followed this initial attempt of self analysis, by another blanket assignment in each of my classes. This time each paper was to be a definite attempt at self-reading. Since the youngsters had thought through what they desired to get from their English course, I continued that line of thought in directing their effort at reading themselves.

A teacher's principal task is to serve as a guide to the students. Direction in reading merely the printed page furnishes very little stimulus for the child. The pupil who feels that his educational processes are being directed by someone who understands him and who takes a personal interest in him, tackles the printed page with vigorous enthusiasm. The results of

any effort which creates this atmosphere more than repay an instructor for his efforts.

This is evidenced by the results of Bill Fisher's attempt at reading himself. He even proved that a good reading lesson can be a boon to spelling, — at least to carelessness in spelling. Bill was one of the few whose interest had been hard to win.

This was the paper that he handed in:

I READ MYSELF

I think thot the most important reoson for my not getting my english lestors is that nobody has ever gave me a good enough reoson to want to get it. Most People or perty near everyone will tell you you have to take it but they don't know where you will use it. It is campulsary and you have to take it bfore you go to collage so I would not need it there and I an not going to be a doctor or lower.

Mash. is whot I will probly be in or electronicky and in a few years the machines will be so automatic thot all you have to do is push a botten and sit down and watch it work.

You would say thot you woild need to know english, verbs, nouns, adj, to be able to make a report. Well maboy you woild some but very little because nost of what you said would be about the machines and the olny way we could learn about it woild be there not in school.

I can name lot of jobs where you don't hove to know nouns, adj, to be able to work. You will be able to advance in the job too if you are quick to learn.

Thot is why I don't get ny english and every body knows why I should but me.

After reading this paper, I called the boy to the desk and read it to him pointing out each mark of carelessness. At the conclusion of it, I turned to him and said, "Bill, this paper is answer enough to why you should get your English."

The lad hung his head and replied, "Yes, I see it now."

In a couple of days, he brought a second paper to me—I RE-READ MYSELF. A comparison of the two are proof enough of the value of self-reading.

I RE-READ MYSELF

After writing my first paper on I Read Myself, I was called for a conference with my teacher. I was made to realize what a mistake I had made in my attitude toward my English course.

The trouble with me was that I had never taken the time to think of the real value of my language in the future, no matter what line of work I choose. Even in mechanics or electricity I am going to need to express myself, and now that I think about it, I am ashamed of my first effort on this subject.

English is the language in America. People use it in all walks of life every day. Those who do not know how to use it in the correct manner do not like to use it.

All people, no matter what they do in America, must sometime

write something and in order to be able to express him or herself right, should have a knowlage of English grammar.

The world is at peace now, and America is one of the big powers of the world. It is going to take an active part in world affairs in years to come. In order to do this it must be a nation of intelligent people who can take an active part in their government.

In order to take a small part in their nation's affairs, the people must have an understanding of the English language.

So, after I think about it a while, I know why I should have a good knowlage of English grammar.

From now on I am going to get my English. Everybody knows why I should—including me.

His resolution was genuine. Being with me again this semester, he is exhibiting a completely changed attitude. Reading did it!

Ruth Moore, a negro girl in a 2B section, seldom looked up during the entire hour. Her inferiority complex, enhanced by brooding over racial slights certainly made her give the impression of belonging to a down-trodden race. On one occasion she expressed herself to me privately that even some of the teachers were trying to hinder the colored children in the school from getting an education. Of course I lost no time in trying to get her to see that was a mistaken impression. Her attempt on the assignment, which follows, scores another hit in this game of reading.

I READ MYSELF

Because I am of the colored race, there are many things and people that lie between my education and me. I have been trying to do the best in all my classes. There are some who try to help me and some who try their best to discourage. But in spite of that I am still trying.

There are many who could be like George Washington Carver among us, but they haven't the chance.

There never has been a time when my people have been respected. Many of them were sold, beaten and put to death. They never have been treated as equals to the white race.

What I mean when I refer to equality is that there should be negro men and women secretaries, clerks, doctors, and in fact, an opportunity to follow any occupation.

I am going to finish high school and go to college. What will I do then?

As I think about it, the thought grows and grows that my life's job might be to help my race present itself to the world in such a way that other races will have to recognize our case and give us the chance we want.

If I am going to do that, I'll have to keep that goal in mind and not be discouraged at the slights of careless, unkind people.

This one assignment alone resulted in salvaging several final semester failures. One notable case was that of Ronald McLane. An F for the second grading period was brought up to passing level before the end of the semester. The effort took root immediately following Ronald's attempt at reading himself. He said in part:

I never failed a subject until this last grading period. When I got

my report card for English, I saw that it had an F on it. I concluded that it was not the teacher's fault, but my own. Why did I get an F? I can do just as good work as the rest of the students. I thought myself through, and here are my results.

I failed English because when I came back to school after having been absent, I failed to get into the swing of things right away. Not only did I put off making up my work that I missed, but I kept putting off my daily assignments until it was too late to do anything about it. It wouldn't have been too hard for me to do. I was just too lazy to do it.

We call ourselves *professional people*. If we are to merit that term, we must insist that our services be on the professional level. I am convinced that the broadened concept of reading must be adopted by every teacher in every department before he can get the best efforts and most satisfactory results from every one of his pupils.

I have proved to my absolute satisfaction that through *reading*, any class can be controlled. A spark *can* be kindled in every student no matter how low an I. Q. he possesses, or how unfortunate a background he has. Attitudes can be changed and motives created.

Reading as conceived through its broadened concept is pre-requisite to progress in the more formal approach in any course.

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